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AD-A032 531

THE SOCIAL IMPACT ON A COMMUNITY RESULTING FROM
A MILITARY BASE MISSION CHANGE

AIR FORCE INSTITUTE OF TECHNOLOGY,
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

SEPTEMBER 1976

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THE SOCIAL IMPACT ON A COMMUNITY
RESULTING FROM A MILITARY
BASE MISSION CHANGE

William J. Frey, Captain, USAF

SLSR 6-76B

UNITED STATES AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
Wright-Patterson Air Force Base, Ohio

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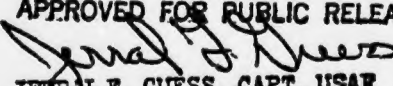
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER SLSR 6-76B ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE SOCIAL IMPACT ON A COMMUNITY RESULTING FROM A MILITARY BASE MISSION CHANGE		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis
7. AUTHOR(s) William J. Frey, Captain, USAF		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Graduate Education Division School of Systems and Logistics ✓ Air Force Institute of Technology, WPAFB, OH		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Department of Research and Communicative Studies (SLGR) AFIT/SLGR, WPAFB, OH 45433		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE September 1976 ✓
		13. NUMBER OF PAGES 112
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES APPROVED FOR PUBLIC RELEASE AFR 190-17.  JERALD F. GUESS, CAPT, USAF Director of Information		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Environmental Impact Base Closures Social Environment Social Indicators Quality of Life		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Thesis Chairman: Patrick J. Sweeney, Lt. Col., USAF ia		

SLSR 6-76B

THE SOCIAL IMPACT ON A COMMUNITY RESULTING FROM
A MILITARY BASE MISSION CHANGE

A Thesis

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Facilities Management

By

William J. Frey, BS
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September 1976

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This thesis, written by

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has been accepted by the undersigned on behalf of the
faculty of the School of Systems and Logistics in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN FACILITIES MANAGEMENT

DATE: 7 September 1976


COMMITTEE CHAIRMAN

ACKNOWLEDGMENTS

I wish to thank Lieutenant Colonel Patrick J. Sweeney, my thesis chairman, for supplying the necessary guidance throughout this research effort. His encouragement and direction were instrumental in the successful completion of this thesis.

The public employees and officials of Wilmington, Ohio, also deserve my sincere appreciation for their willing assistance in the data collection phase of the research. Their patience and understanding made a lot of tedious work enjoyable and personally rewarding.

I owe a special thanks to Phyllis Reynolds, my typist, for preparing this final thesis.

Finally, I wish to acknowledge the many hours of work put in by my wife, Nancy, in typing drafts and proof-reading endless pages of finished typing. Her inspiration near the end of this research effort contributed much to its ultimate completion.

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CHAPTER I

INTRODUCTION

Announced mission changes at military installations have caused considerable civilian concern. Neighboring communities have perceived detrimental effects resulting from these mission changes and have applied pressure upon government officials either to reverse or to alter previously announced changes (21:2). The Government has had difficulty justifying and defending its decisions (31).

For example, the Air Force recently attempted to relocate the Air Force Communication Service (AFCS) Headquarters from Richard-Gebauer Air Force Base, Missouri, to Scott Air Force Base, Illinois, but a federal court decision prevented the transfer action. The citizens in the local community perceived that a detrimental impact would result from the drastic reduction in the mission of Richard-Gebauer Air Force Base. No environmental impact statement had been prepared with which either to prove or to disprove the citizens' claim (21:2).

The Air Force can expect similar court decisions until the factors that affect local communities relative to the military mission changes are known (31). Once these factors are identified and their impact is determined, the

Government will have information with which to support announced decisions.

The purpose of this research effort is to provide an effective management tool with which to objectively assess the social effects of mission changes on surrounding communities and thereby to give the Government a means with which to determine supportive evidence for its mission-changing decisions.

Problem Statement

To study the quality of life that exists within a community, many areas need to be considered (30:186-189). By categorizing these areas into three main subdivisions--economic, physical, and, the area studied in this research effort, social--efforts can be concentrated into each subdivision, insuring that as much pertinent information as possible has been considered (18:36-38). The data resulting from these research efforts can be used to devise a model with which to assess and, hopefully, to predict the impact of a specific base mission change. Such a model could also be used as a decision-making tool to help determine which base among several choices, if its mission were to change, would least affect the local community; then, if faced with court action concerning proposed base mission changes, government leaders could use this model as supportive evidence (31).

Justification

The probable court proceedings that restrain the Air Force's efforts to efficiently manage its installations and organizations are the most urgent justification for this research effort. The legal entanglements that followed the announced mission change at Richard-Gebauer Air Force Base illustrate the above point (31). The same types of delay occur in civilian industry. For example, construction on the Alaskan pipeline was postponed for over two years because of social, economic, and environmental problems (30:292).

Since 1970, when the National Environmental Policy Act (NEPA) became law, the Air Force has been required to carefully consider environmental impacts which result from base closures. Also, in consultation with the Council on Environmental Quality, the Air Force must develop procedures to insure that "presently unquantified environmental amenities and values" are given appropriate consideration in the decision-making process (35:1).

The decision in the case of the AFCS Headquarters relocation was based primarily on the defendant's failure to file a detailed statement on the environmental impact of the proposed action as required by NEPA (21:2).

As stated in an Environmental Protection Agency publication on the quality of life, "basic research endeavors are not numerous enough to justify general comment

[18:13]." A general review of the literature has shown that a limited amount of research has been done on the social aspects of a community with regard to environmental impact; therefore, the proposed study is justified as basic research into this narrow aspect of environmental studies.

A considerable amount of research has been done on identifying the Quality of Life (QOL) factors in communities and some research has been done on the actual measurement of these factors (4:5; 15:8); however, a review of the literature revealed that the effect of base mission changes upon these social factors has never been adequately correlated and that the potential impact on the social quality of life has never been considered as an important aspect in the decision-making process.

Further justification for this study is provided by a statement made by Major General Robert C. Thompson, Air Force Director of Engineering and Services, during the Energy, Environment and Ethics seminar of the National Association of Environmental Professionals in Washington, D.C. on 5 November 1975:

We in the Air Force view environmental management in two ways. The first concerns legal requirements by the Congress, the courts and the Executive with which we must comply. The second is the opportunity to do a better, more efficient job by employment of environmental management [34:seminar].

This statement suggests that the Air Force is finally viewing the environmental management area as highly important in all community-affected decisions.

Studies of physical and economic impacts upon the quality of life within a community have received considerable emphasis (14:55-56). Consequently, a methodology and terminology have been established. With consistency in mind, the study of social indicators should utilize similar techniques, thus allowing a consistent and comparable basis of viewing the three separate areas. A model consisting of the entire range of impact factors could then be used as an essential decision-making tool.

Recent legislation has finally begun to incorporate a more complete requirement for impact assessments in public work projects:

In the water resources area, legislation now requires that before you can begin any major project the agency has to show not only the economics but also the social and environmental costs and benefits the program is designed to produce [23:16].

If the social impact is to be studied in the aforementioned water resource area, then base mission changes that could affect local communities should justify a social impact assessment also.

Further justification stems from the possibility that an actual decision made by the Department of Defense to change a particular base's mission may be made by considering one or more of the categories (i.e., economic, physical, social) (31). As a result, there is the need to evaluate all three categories to ensure that all pertinent information is available for consideration.

Even as late as June of 1975, George A. Watkins, a staff sociologist of the Battelle-Columbus Laboratory, presented a paper at a seminar conducted by a firm located in Toronto, Canada. The paper emphasized the importance of developing techniques to measure social change, to refine social indicators, and to formulate social impact methodology. These techniques directly reflect the measurement of the social factors that were mentioned earlier (38:4).

The final justification for this research lies in the concept that the Government has a moral responsibility to the people to protect the entire environmental range of influences. This moral responsibility is reflected in the many social programs the Government now supports (e.g., food stamps, welfare, equal opportunity, and disaster relief) (32). The passing of the National Environmental Protection Act also reflects the Government's recognition of its responsibilities; however, in many cases the Government lacks the proper tools for evaluating environmental impacts.

Scope

As mentioned in the problem statement, this research effort was limited to a study of the social impact on a community resulting from a base mission change. Physical and economic studies were conducted separately as part of a coordinated research effort.

Generally speaking, there were two basic ways of dealing with a study of this type: the "case study approach" and the "model building approach" (30:78). Air Force specialists in the Civil Engineering Center (CEC) at Tyndall Air Force Base, Florida, are presently working on building a model with which to predict future impacts. This research effort, in the form of a case study, will, therefore, complement the work being done at Tyndall. Wilmington, Ohio, a community of approximately ten thousand, which five years ago (1971) was involved in a base mission change, was used as the basis for data collection (31). Since Wilmington is centrally located in Clinton County, Ohio, county data was collected whenever possible. (See Table 16 in Appendix B.) Where data could not be found to describe changes in Clinton County's environment, Wilmington's environment was analyzed. Since no employees of the base were determined to have lived outside the county, this approach appeared to be quite appropriate (36).

Social indicators are quantitative data that serve as measures both of socially important "objective" conditions of society (e.g., births, deaths, crime rate, social disorders) and of "subjective" perceptions of life experience (e.g., personal involvement in local affairs, job satisfaction, social values). Since the ultimate goal of this research effort was to find a practical way to measure, with a sufficient degree of accuracy, the social

quality of life in a community, only the objective conditions which are readily quantifiable were included. No attempt was made to determine synergistic affects of environmental changes.

The following operational definition of the term "social indicator" has been included to clarify its meaning within the context of this research:

Social indicators are tools which can help us to describe, measure, and assess performance in many social areas. Properly and meaningfully designed, they allow us to operationalize complex quality of life phenomena, problems, and goals, to define the primary and secondary impact of certain actions and developments on well-described qualities, and to identify their costs and benefits. All these elements should, by using social indicators, be prepared for deliberate rating [30:28].

Operational definitions for the individual indicators along with the analysis of the data are included in Chapter IV.

Objective

The desired result of this research effort was to ,accumulate as much supportive information as possible with which to enhance future research efforts for modeling and predicting the social impact of base mission changes. To accomplish this result, the research explored as many social indicators as the time constraints allowed. Those indicators that seem promising will be passed on to future researchers, thus enabling them to explore in greater detail only the ones that appear to be appropriate for a prediction model.

Research Questions

The above objective can be reduced to the following research questions:

1. What measurable indicators would be relevant to determine the social quality of life in a community?
2. Is historical data available with which to make these measurements?
3. Which of the social indicators can be associated with a base mission change, to the point that a significant change in the indicators could be predicted?

Methodology

This research attempted to identify those social indicators which reflect long-range effects on quality of life. It tried to identify which indicators were readily measurable and determine if reliable data sources were available. The numerous environmental indicators were conveniently aligned with the closest matching category (i.e., physical, economic, or social). The categorization of these indicators insured that no one indicator was accounted for twice (18:35).

An effort was made to extract data from sources which are readily available for study by Air Force personnel involved in environmental impact assessments. Limiting the data sources to those readily available insures that future assessments using the same sources will have a common basis.

These data sources, consisting of public and military records, are assumed to be accurate and valid. This assumption made it possible to synthesize much more data without having to test it for validity. Because most public and military records are considered relatively reliable and objective, the researcher was able to concentrate on examining the social indicators themselves rather than on their validity (31).

Both civil and military records were examined for information that has been recorded over time. Information pertinent to the social indicators finally chosen was emphasized. Each of these social indicators was plotted on a two-dimensional scale against time. The time frame of the base mission change was of particular importance since a significant change in the slope of the plot might have been associated with the actual base change; however, it was very important to determine if any other events in the community (e.g., the closing of a major industry) during the same time period could have been responsible for an abrupt change in the plotted slope. In some cases it was also necessary to compare the social indicator being plotted with a plot of the same information at the county or state level. Whichever the case, the researcher tried to establish whether the change was a result unique to the community, a result of a larger trend, a result of another major community event, a result most probably

related to the base mission change, or a result of some combination of these.

As mentioned earlier (page 7), only objective indicators were considered. Several devices to measure subjective perceptions were considered; however, the expense and time required to construct and distribute them plus the enormous problems of incorporating them into a future predictive model made their use impractical. If a community knew that a base nearby was being considered for a major change, that knowledge could influence the results of a questionnaire or survey; therefore, as already mentioned, the subjective information appeared to contribute little toward devising a predictive model.

Information sources were limited to those available in any community. A practical, predictive model resulting from future research efforts should not have to rely on creating data. Civil information was obtained from existing public records and commercial companies dealing in service to the public. Military information was obtained from unit history reports and appropriate government agencies (13:9; 36). This military information was extremely important in determining how much influence the military population had on the community and its social quality of life.

The availability and usefulness of military records of the base, however, was a problem. Information obtained

from unit history reports contained nothing concerning the number of families in the base population or how many total dependents there were who may have used public facilities such as schools and recreation facilities. Information concerning the size of the military population relative to the community was very important in evaluating how much influence the military population could have had on a particular social indicator.

Table 1 lists possible sources of information which could be testable. Changes to the listing were made depending upon the availability and format of the records. Also, other sources should be added to the list as they become available. A final selection of the social indicators to be studied, although not exhaustive, was comprehensive enough to evaluate changes in the quality of life. The final selection was also influenced by the availability of records sought, as will be discussed later. Public records were examined at the city, county, and state level as needed to obtain the desired information.

It was impractical to measure all of the social indicators on the same scale. For that reason, a single criteria test was not sufficient to judge the various individual indicators.

After plotting all of the social indicators, only those which showed a significant change in slope near the time of the base mission change were tested against a

TABLE 1
POSSIBLE INFORMATION SOURCES FOR
MEASURING SOCIAL INDICATORS

Public Services	Use of Public Services
Civil Rights Commission	Fire Department responses
Department of Education	Medical services rendered
Fire Department	Policy Department responses
Health Department	Public utilities customers
Human Resources	Recreation facilities
Police Department	Recreation programs
Public Utilities	School enrollment
Recreation Department	Transportation usage
Traffic Department	
Urban Development	
Use of Commercial Services	Social Parameters
Cable television customers	Births
Electric customers	Crimes
Refuse disposal customers	Deaths
Telephone customers	Divorces
Water customers	Educational opportunities
	Electoral participation per- centage
	Illiteracy
	Labor force
	Leisure opportunities
	Marriages
	Mental health
	Occupational change
	Population total and per square mile
	Prostitution
	School dropout
	Social disorders
	Student/teacher ratio
	Unemployment
	Unwanted pregnancies
	Welfare enrollment

criteria test. Any indicator which had a criteria test already addressed in available literature was tested against the criteria test if the test seemed reasonable within the context of the case study; however, most indicators did not have suitable criteria tests already developed. For these indicators, the researcher made a value judgment based upon supportive information derived from similar tests and knowledge gained through this research effort.

The type of quantitative testing anticipated by the researcher was not conducted because of the failure to discover in the literature the sort of criteria tests sought and because the data collected revealed none of the expected time-series changes of a magnitude which seemed sufficient to make a quantitative test meaningful. These shortcomings are discussed further in the following chapters; nevertheless, the projected approach to analyzing detected changes was offered here for the reference of future research efforts.

Conclusion

The problem statement and justification pointed out the emphasis that the Air Force is currently placing on impact assessments. The scope and objectives were discussed in order to put this research effort into perspective relative to other work being done in the field. The research questions narrowed the actual area of concern to

determining appropriate social indicators that might be associated with base mission change. These indicators could then be recommended for further study in developing a predictive model. Finally, the methodology that was utilized was discussed, including the selection and testing of significant social indicators.

Historically, when the fate of a military installation has been decided, the environmental impact on neighboring communities has been, for the most part, ignored (31). Whether the social implications are of enough significance to sway a decision has yet to be proven; however, until a method of objectively assessing these social implications is developed, their impact will have a minimal influence on a final decision.

CHAPTER II

TECHNOLOGY ASSESSMENT--THE STATE OF THE ART

This chapter will introduce some of the pertinent work that has been done in the field of environmental impact assessment, and, in particular, social impact assessment. Also, past quantification schemes and criteria tests are covered in order to give the reader some idea of the depth of knowledge in this area. The chapter is not intended to be an exhaustive survey of the literature; instead, it represents the most important sources of information on social impact assessment which could be assembled and analyzed in the time available.

Overview

A general review of available literature indicated that a limited amount of technical information exists on social assessments of communities. This informational void is a direct result of the past lack of emphasis placed on the subject matter. The social aspects involved in environmental planning have received little emphasis as compared to other areas. Not until the 1960s did a need for social indicators become evident. Prior to that time, decision makers used economic indicators such as census data to guide their decisions (18:7).

General Environmental Impact

A national policy of "encouraging production and enjoyable harmony between man and his environment [17:2]" was finally established with the enactment of the National Environmental Policy Act of 1970. As mentioned in the Handbook for Environmental Impact Analysis, this policy extends to the creation and maintenance of conditions under which man and nation can exist in productive harmony and can fulfill social, economic, and other requirements of present and future generations of Americans (17:2).

The Environmental Protection Agency was established to assure that the harmony between man and his environment remains balanced. One of its publications, Quality of Life, Vol. II of Studies in Environment, consolidated past research efforts in the environmental assessment areas. This collection of fragmented data was used to formulate a general concept of the quality of life. A developmental methodology for constructing a measurement scheme with which to assess the existing quality of life in a community was derived from this basic quality of life concept (18:84). The information consolidated in this publication has been of assistance in determining a methodology compatible with past and present environmental measurement.

A technical publication entitled Analyzing the Environmental Impact of Water Projects contains considerable material concerning the science of impact assessment.

The following explanation of terms is included as basic background information:

The term impact assessment is used herein to describe the process through which all significant changes brought about by an action are analyzed and evaluated. A distinction is made between analysis and evaluation because it allows us to separate those issues that are the principle concern of planners from those issues that are the principle concern of decision makers.

Impact analysis refers to the portion of the assessment process in which environmental, social, and economic changes are forecasted and described in quantitative and/or qualitative terms [23:1].

This publication addresses the methodologies for assessing environmental impacts, some of which may be adaptable to the study of social impact factors. Of real benefit will be the comparisons made possible by using the methodologies presented in this publication. This publication further deals with definitions of terms and concepts and provides guidance on how to approach environmental impact analysis (23:3-1,14-69). As will be pointed out in the next section, however, nothing has been done to relate the study of social impact analysis to base mission changes.

Base Closing Impact

A report prepared under contract with the U.S. Army Control and Disarmament Agency entitled Economic Impact of Military Base Closings is comprised primarily of economic case studies of community adjustments in response to the unexpected crises of base closures. Of significance is the fact that only the economic impact upon the

communities was considered important enough to justify research. Possible social or physical impacts were disregarded. The report also emphasized the need to compare data pertinent to a time period preceding an announced base closure with data accumulated both after the announcement and after the actual closure (14:55-56). The long-run investigation technique has been of prime importance to this research effort. The general area of social impacts will be covered next to determine what might be applicable to studying base mission changes.

Social Impact

The publication Technological Assessment and Quality of Life is a productive source of information that deals primarily with social impact assessment and the state-of-the-art of technologically assessing the quality of life. This book helps define the parameters involved in socially assessing a community while pointing out the semantic difficulties that plague research within the field (30: 13-30). The book's usefulness was primarily for the purpose of definition and determination of social conditions.

On a more technical level, an article by Otis Dudley Duncan carefully cites research objectives which are required if decision makers are to be provided with accurate and reliable information about the state of the social system. In his argument for higher quality replicative studies, Duncan proposed as key areas of improvement

"more rigorous procedural steps, greater data exchange among researchers, and more attention to calibration and cohort analysis [15:10]." Duncan also suggested that items of immediate interest include studies of occupational change, victimization by criminal acts, educational opportunities, mental health, and value changes (15:12). These five items were considered by the researcher when devising the list of potential social indicators for which to seek quantified data.

A study entitled Environmental Impact Assessment Study for Army Military Programs contended that the effects of a project on people and their responses to the project may not be immediately assessible; however, these effects will eventually influence the people involved (19:140). By evaluating the human response to a situation, a social assessment is made. The study further revealed the capacity of an organization to generate broad support for its policies and, in turn, to execute them. The execution phase is directly related to how the community believes its quality of life will be affected, recognizing that people are inclined to fear that their way of life will be damaged or disrupted if the resource base upon which they depend is altered (19:148). This very idea appears to be the reason behind the Richard-Gebauer AFB court case previously mentioned (page 1). The area of social assessment can now be broken into indicators and their measurement.

Social Indicators and Measurement

Some types of social indicators are needed to evaluate the various human responses to situations. Daniel Bell, in 1966, was one of the first persons to recognize this need:

What we need, in effect, is a system of Social Accounts which would broaden our concept of costs and benefits, and put economic accounting into a broader framework [to] move toward measurement of the utilization of human resources in our social information areas: (1) the measurement of social costs and net returns of innovations; (2) the measurement of social ills . . . ; (3) the creation of "performance budgets" in areas of defined social needs . . . ; and (4) indicators of economic opportunity and social mobility [1:152].

To measure the general areas as described above by Bell, a quantification scheme must be "based on the assignment of objective and subjective values to a series of variables which are called QOL (Quality of Life) factors [16:1179-1184]." Of course, as mentioned in a research article in Changing Times magazine,

There's no way to hold a tape measure to every single factor that influences the quality of life in a given locality. For instance, the "tone" or "spirit" of a place makes a lot of difference. The researchers recognized that this exists but cannot be measured, so they simply examined the measurable factors [33:33].

The factors used appear to provide a baseline for measuring QOL.

In the book Social Measurement, an attempt is made to delineate the major social areas. A few of the areas covered are: education, employment, housing, population and family structure, marriages, births, divorces, deaths

and minority hiring (28:15-50). These areas are by no means universally accepted as the best social indicators. Berkowitz and Lutterman's "Social Responsibility Scale" utilizes fourteen social indicators with which to measure the stability and individual participation in the life of the community (2:169-185). This scale attempts to assess a person's traditional social responsibility and orientation toward helping others. Campbell and Converse explore an area which seems to have been left out of this scale--the social psychology of the nation. They cover areas involving the attitudes, expectations, aspirations, and values of the American population (4:5).

Some of the social factors that have been previously identified are objective indicators--marriages, divorces, deaths, etc.--while others are subjective indicators--attitudes, values, etc. John Lear, in his article "Where is Society Going? The Search for Landmarks," was one of the first to combine the objective and subjective indicators to get an overall indication of the relative stability of a community (20:34-39). By analyzing the data, he attempted to make inferences about the direction in which current social trends are leading American communities. Although subjective indicators appear to have some merit, they were not used in this study for the reasons mentioned earlier (page 7).

Information on the subject of measuring Quality of Life (QOL) was found in Volume II of the Environmental Protection Agency Studies in Environment series (18). Section VI discussed the merits of a list of QOL factors for use as a guide in developing representative indicators. An extensive table "presents lists of factors of ten authors and demonstrates the fact that one person's factor list is bound to be different from that of another [18:31]." This listing of factors proved to be a useful source of information when compiling the aforementioned list of possible information sources for measuring social indicators (page 13).

Sheldon and Moor have edited a book entitled Indicators of Social Change: Concepts and Measurements; however, as in many other sources already mentioned, the emphasis was placed more upon measuring and the problems of measuring than upon the significance of the information once it has been measured (26).

One last source of potential information regarding QOL factors was a listing of issues that were raised in reports and hearings on the subject of technology assessment in the United States Congress. This quite extensive list is included in the publication Technological Assessment and Quality of Life (30:86-88). Table 2 summarizes the social issues that were presented before Congress and

that appear to be potentially productive for this research effort.

TABLE 2
SOCIAL ISSUES

Civil disorder
Community cohesion
Crime control
Developments in the life sciences
Highways
Housing
Human resources management and development
Medical care
Population growth and concentration
Recreational activities
Urban problems
Traffic congestion
Urban overcrowding

All of the aforementioned social factor listings were considered when compiling the final list from which measureable factors were extracted for use in this research.

Conclusion

There does appear to be a definite lack of available literature dealing specifically with the social implications of environmental impacts on a community. Although a variety of approaches to impact assessment were discovered, the research failed to uncover any quantifiable tests designed to explain the measuring of a time-series change in a social indicator. Also, no specific criteria tests were discovered which could be used to assign significance to such changes.

As will be seen in Chapter IV, none of the QOL factors sampled showed a lasting change. Because of this, the failure to discover applicable criteria tests was not a handicap in the research.

Impact assessments are not substitutes for decision making; rather, they may help to arrive at more rational decisions provided they are channeled into appropriate structures of responsibility. The findings of this research effort should be received in this context.

CHAPTER III

DATA COLLECTION

In an attempt to answer Research Questions 1 and 2, a fairly comprehensive list of social QOL factors was constructed. Using this list as a guide, as much historical data was accumulated as time allowed. Working in a systematic fashion, so that following research teams could use the same approach, the researcher compiled information on all of those indicators which could be quantified. The collection method and sources are described in this chapter.

Scope

The researcher explained in Chapter I that the data sources were limited to those which are readily available for study by Air Force personnel involved in environmental impact assessments. In almost every case, the researcher introduced himself to the persons in charge and was granted access to all available data. All public and private data that were asked for and were available were received. In three instances, either the information was not available (i.e., none had been kept) or its reliability was highly suspect by the people in charge. These individual situations will be discussed in the analyses that follow. An

attempt was made to gather data on each of the social indicators listed in Table 1. Where possible, county and state data were gathered to allow comparison for trends. The city of Wilmington was used when county information was not available. These instances will also be discussed in the following analyses.

The researcher decided beforehand that data would be collected from 1966 through 1975, a period encompassing five years before and five years after the closure of the air base. The time-series approach utilized this information in assessing changes over time. The information was accumulated in the form of year-end totals of each parameter, making it possible to review only long-term environmental effects upon the community. All of the data was numerical information; however, some interviews helped clarify the meaning of certain parts of the information.

Methods

Primarily five methods were used to obtain the desired data. They were:

1. Published books
2. Reports prepared by local, state or federal agencies
3. Letters to government agencies
4. Lists compiled by people in charge
5. Direct access to records

Books

In a couple of instances, information was extracted directly from published books. For example, population

information was taken from the World Almanac and Book of Facts (44).

Reports

Annual reports of some of the public functions studied were an important source of data. Unemployment and labor force figures were among the information found in such reports. Also, a report by the Department of Housing and Urban Development (HUD) included the unit manning of Clinton County Air Force Base, a factor which was very important (see Appendix A, Table 5).

Letters

Information from state and local offices was received in response to several letters sent out. Unemployment information, hospital admissions, and fire department responses were all a result of letters and personal contact with these offices. All of the letters received prompt replies.

Compiled

In several instances, the information was not immediately available to the researcher. The person in charge provided a compiled list of the pertinent information at a later date. In each case, the researcher picked up the list from the person in charge and verified that the information was indeed accurate. For example, the hospital business office extracted the total annual hospital

admissions and emergency room treatments from a computer data base (12). This method proved to be the one used most frequently.

Direct

This method was used to gain direct access to records. It was used to screen, page by page, the ledgers of the county courts in order to obtain the information on marriages, divorces, criminal cases, and other county information.

Other Sources

Whenever possible, quantifiable information was preferred over subjective judgments; however, in a few cases, private interviews were held to clarify information or to answer questions where no numerical data were available. One example was that of police records. Prior to 1974 no satisfactory record-keeping method was in use, making the data highly suspect. The Chief of Police made this point very clear during an interview (39).

Subjective information used in this report will be identified as such so as not to mislead the reader.

Conclusion

The researcher realizes that some potential sources of information may have been overlooked; however, time constraints dictated that only a certain amount of data collection was feasible. Recognizing this fact, those data

sources which were readily accessible and seemed to be the ones to change, if, indeed, a social impact had occurred, were investigated. The researcher believes that the sample information presented and analyzed in Chapter IV was sufficient to determine if, in fact, a social impact had occurred in the local community after the air base closed. This same information should answer the first two research questions.

CHAPTER IV

DATA ANALYSIS

The factors which the researcher determined to be good indicators of the community's social Quality of Life (QOL) are identified, discussed, and analyzed in this chapter. If data were available, the information was plotted on graphs which appear in this chapter. Source information for each graph appears in Appendix A in the tables indicated as sources for the graph. For those factors which had no data support, an analysis was made of the reasons for the lack of information and of subjective information gained in the research effort. Each factor was further analyzed in an attempt to establish supportable relationships between any measured changes over time and the closure of Clinton County Air Force Base.

Statistical significance was not applied to this research because the data, being a historical census, was not suitable for statistical analysis. For each indicator, however, a test of practical significance was utilized. Since none of the indicators had criteria tests established in available literature, significance was determined by analyzing whether individual indicators were greater than or less than they were before the base closure. Similar

analyses at the county and state levels help identify changes peculiar to the local community of Wilmington, Ohio.

A brief history of Clinton County Air Force Base is presented in Appendix B. The base was centrally located in Clinton County, Ohio, two miles southeast of Wilmington. (See Figure 16.) The economy of the local community is primarily based on factory and agricultural work (13; 24).

Population

The size of a military installation relative to that of the local community is an important factor in environmental impacts (31). The unit manning of Clinton County Air Force Base appears in Table 5 of Appendix A. The total number of permanently assigned personnel fluctuated somewhat through the years, but at the time of base closure the number was 598, approximately six percent of the population of Wilmington, Ohio (36). Since a large number of employees lived throughout the county, a two percent figure of the county's population might be more relevant. (See Tables 4 and 5.) Because these percentages are small, the researcher anticipated no instances where the departure of the military would result in an alteration of population characteristics for this community.

Several of the graphs in this report were most conveniently plotted using percent of population for each year. Since these annual population figures were not directly available from census information, the researcher

simply used a linear interpolation between census figures (44). The resulting data, as presented in Table 4, is quite close to estimates made by the Ohio Bureau of Employment Services (24) and the Department of Housing and Urban Development (13) in their reports. Since true population information is influenced by births, deaths, and people moving both in and out of the community--all of which are dynamic characteristics and virtually impossible to estimate--the researcher believes that the straight-line interpolation method is a good approximation for this study.

Employment

Unemployment of the civilian labor force is an important feature of a community's social well being (18). Since a lot of factors within a community could be influenced by the labor situation, its present treatment appears to be justified as a potential indicator.

Labor Force

Figure 1 shows the labor force of Ohio and Clinton County during the ten-year period in question (24). A steady growth rate is seen for both, indicating that the local community experienced no long-term effect after the base closed. No attempt was made to assess the reduction of the Ohio labor force by over 90,000 workers in 1969.

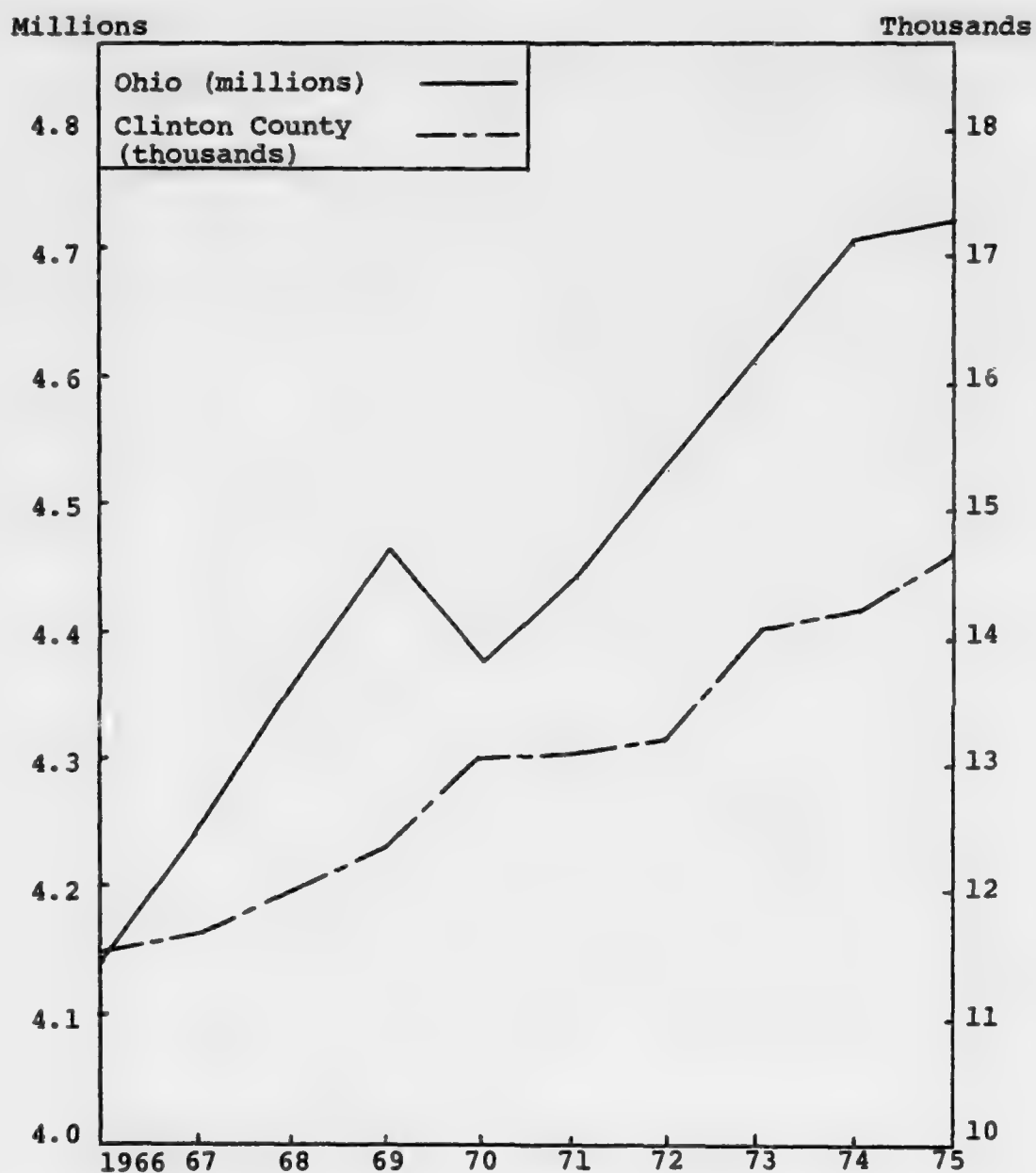


Figure 1
Labor Force

Source: Table 6, Appendix A.

Unemployment

Figure 2 depicts the unemployment rates for Ohio and Clinton County (24). Of particular interest is the fact that both rates were nearly identical for the ten years. The county unemployment rate was approximately .3 percent lower than the state for the entire period, indicating that the county was somewhat better off than the state. The similar trends would seem to indicate that there were no major events affecting the employment rate which were unique to Clinton County.

Welfare

The researcher believed that welfare enrollments might be useful in detecting and verifying changes brought about by the unemployment situation and the general social welfare of the community. Figure 3 shows the annual welfare enrollment during the ten-year period. A detailed breakdown of the enrollment is presented in Table 7 of Appendix A (11).

Since 1969 the welfare enrollment has shown a steady increase. No information was found to make it possible to infer that the base closure in 1971 had an impact upon the enrollment; instead, the nation's economic situation and population divisions (e.g., the average age is increasing with older people becoming a larger percentage of the population) seemed to be a more driving force (11; 44).

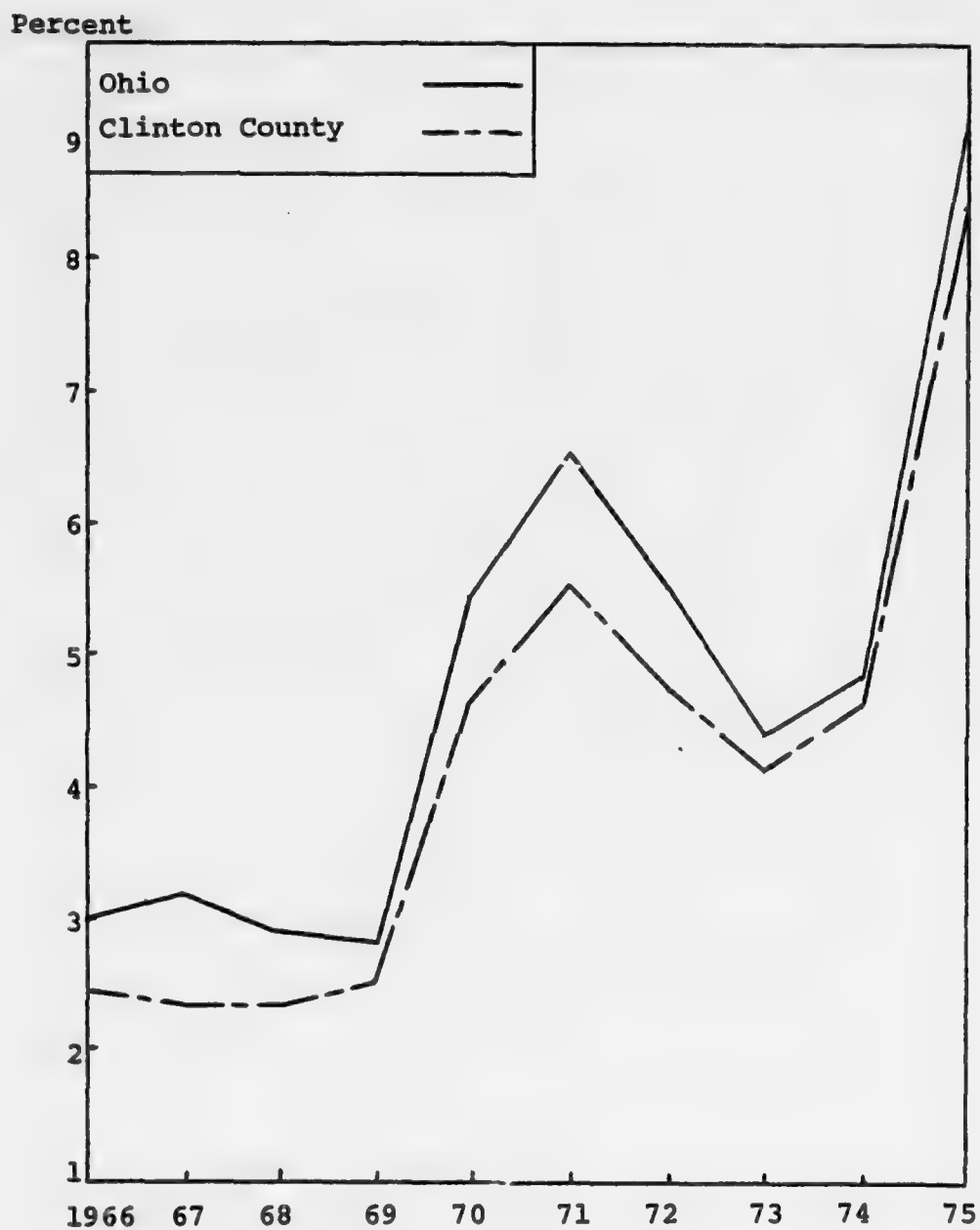


Figure 2
Unemployment
(Percent of Labor Force)

Source: Table 6, Appendix A.

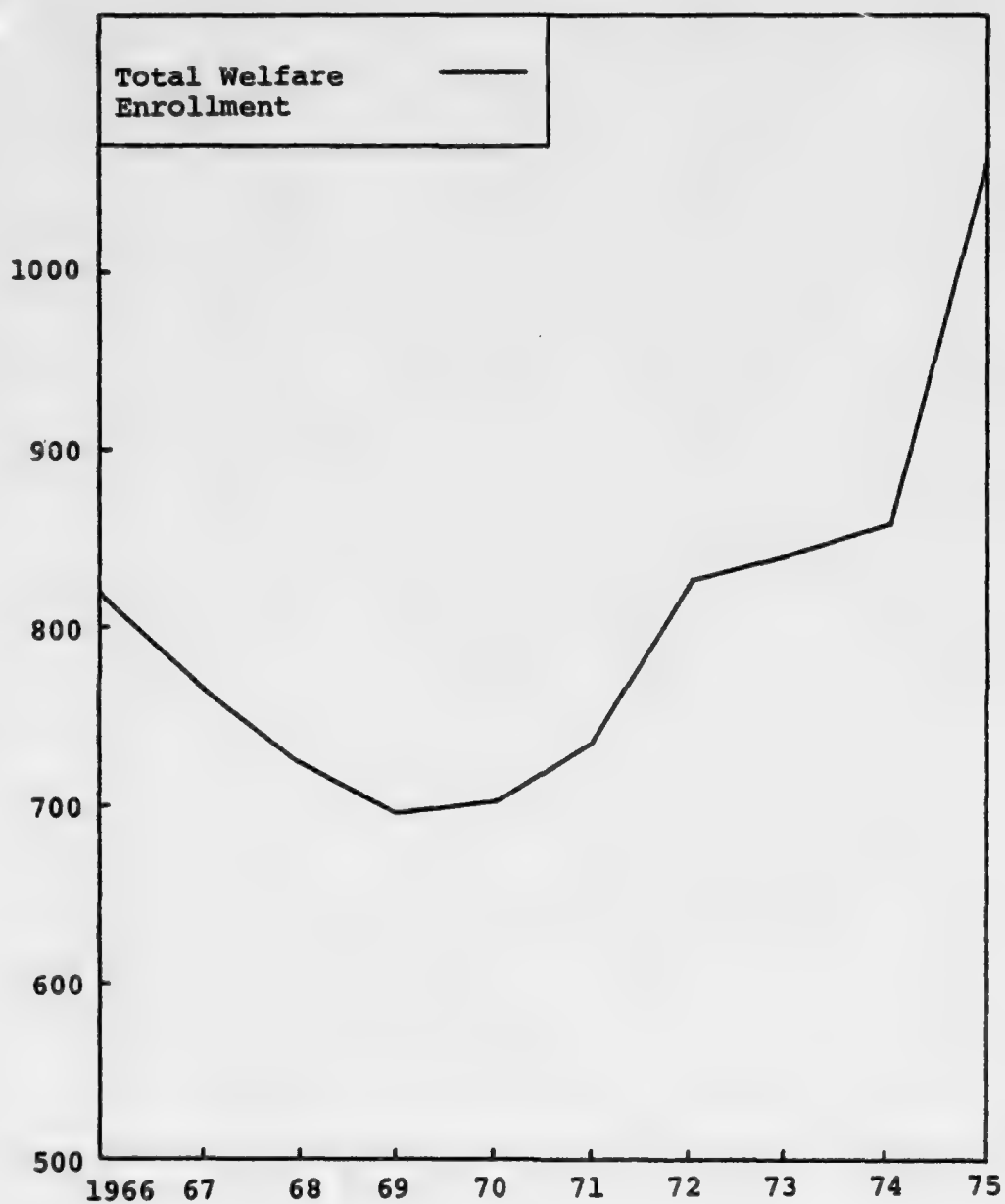


Figure 3

Welfare Enrollment--Clinton County

Source: Table 7, Appendix A.

Courts

The activities of the courts are well documented and represent a readily quantifiable means by which to indicate one important aspect of the quality of life in a community (18). Annual reports and appearance dockets were used to obtain information on the judicial case loads of Clinton County (6; 7). Records of the Ohio Supreme Court are total annual judicial case loads of all the county common pleas courts in Ohio (29).

Criminal and Domestic Relations Cases

Figure 4 depicts the number of criminal and domestic relations cases recorded for both the state and county. The number of domestic relations cases increased steadily for the state, while the county showed an increase in 1971, the year the base closed, followed by a couple of years of declines. This trend might have been a result of the base closure; however, no information was found to support the idea of increased involvement of military members.

Overall, except for 1971 and 1973, the number of domestic relations cases actually increased at about the same rate for both the county and state. Because of this, the researcher is of the opinion that the community experienced no long-term social impact.

Criminal cases also increased at a fairly steady rate, but the county's growth rate was less than the state's

Thousands

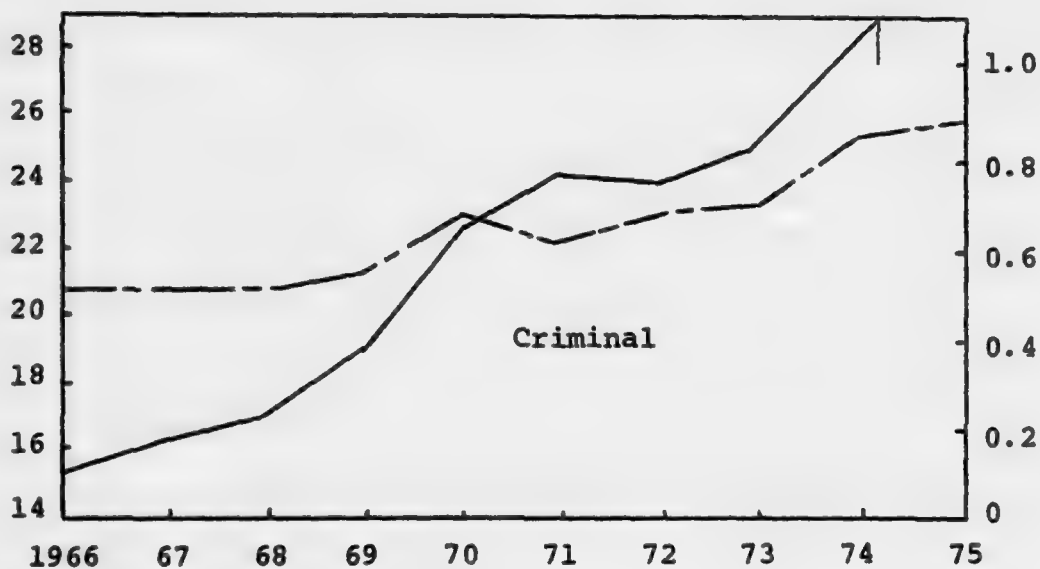
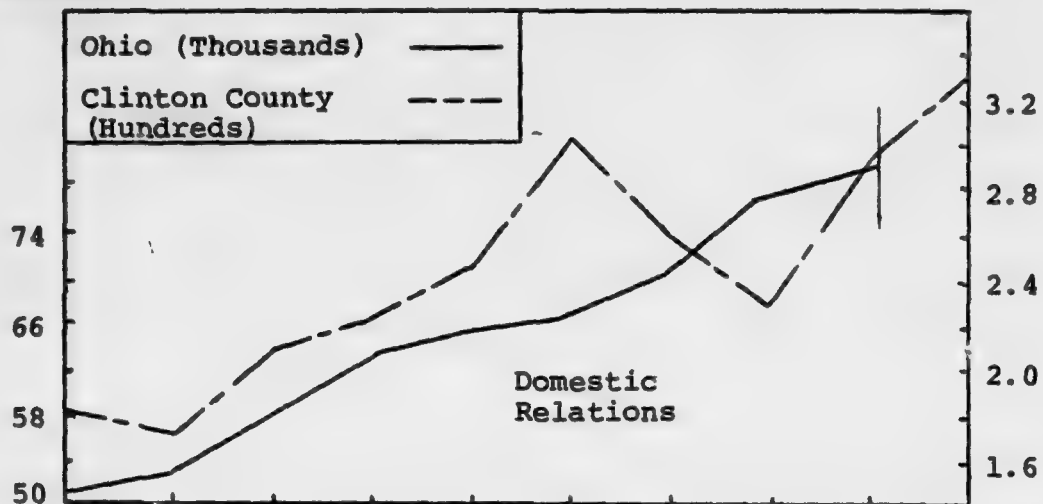


Figure 4

Criminal and Domestic Relations Cases

Sources: Tables 8 and 9, Appendix A.

for the ten-year period. No relationship or impact can be inferred between the total number of criminal cases in Clinton County and the base closure.

Civil Cases

The number of civil court cases processed in Clinton County showed a significant decrease in 1971, while the number of cases throughout the state increased. Figure 5 graphically portrays these opposite trends. It was impossible to determine whether or not the decrease in the county's cases was attributable to the military shutdown. The annual number of cases from 1966 to 1975 fluctuated around 100, while the lower figure in 1971 could have been just a random occurrence. Any social impact that may have been felt within the community was beneficial for the one year. The researcher concludes, however, that the community experienced no lasting impact.

Juvenile Court Cases

Juvenile cases for Clinton County and Ohio are plotted in Figure 5 as total annual cases. A detailed breakdown of the various categories is included in Tables 10 and 11 of Appendix A. No attempt was made to screen case files for involvement of military dependents. The plots show that the county case loads actually increased at a lesser rate than did the state's. No change was

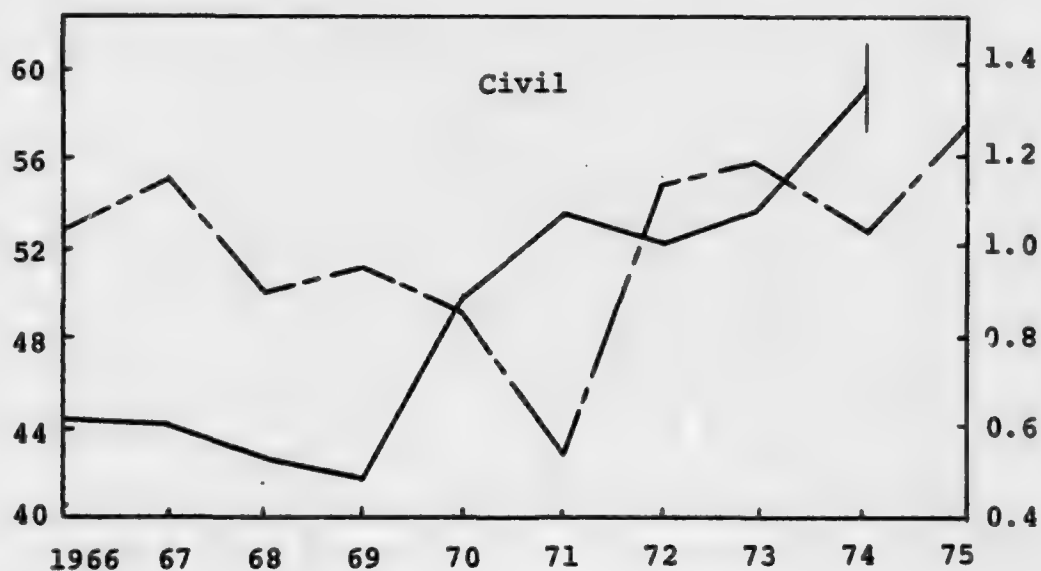
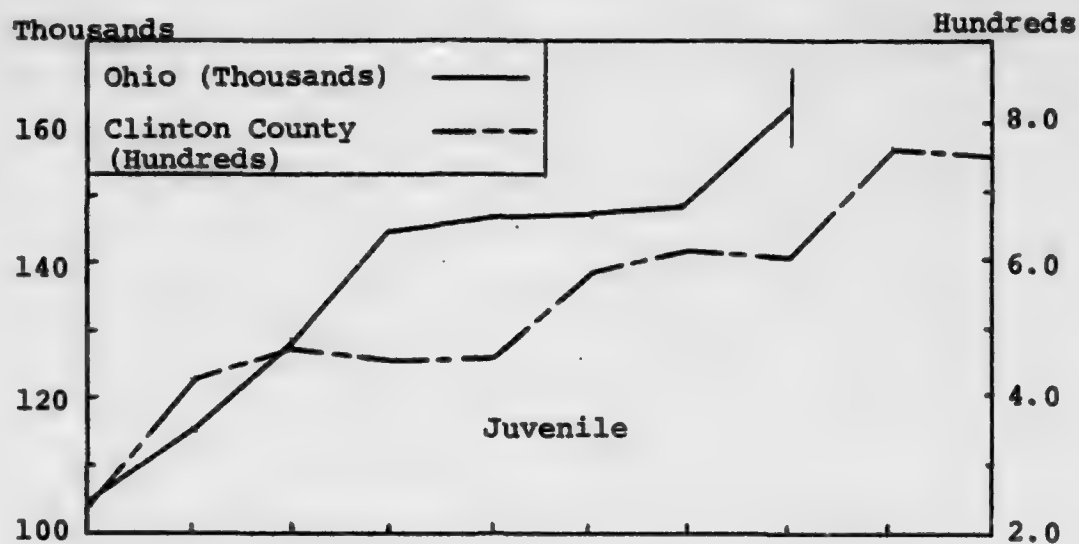


Figure 5
Civil and Juvenile Cases

Sources: Tables 8, 9, 10 and 11, Appendix A.

detected after the base closure; therefore, no evidence of a social impact exists.

Marriages and Divorces

The areas of marital status, social stability, families, and divorces are mentioned in the literature as potential QOL factors (18; 38). The number of marriages and divorces in Clinton County were recorded for each of the ten years of interest (7; 9). The next paragraph justifies that no impact was determined to have occurred, so the researcher made no attempt to obtain comparative information at the state level.

Figure 6 is a graph of marriages and divorces in Clinton County. The number of marriages is based upon entries in the Clinton County Marriage Records (9). The number of divorces was counted in Appearance Dockets of the Clinton County Court of Common Pleas (7). As depicted on the graph, both marriages and divorces declined after the base closed. These effects, however, were short term because both started to rise again at approximately the same rate as they had been rising before the closure. It would be extremely difficult to prove that the military had an affect upon the number of marriages and divorces unless each case was reviewed to determine if one party was a military member. Information gained in this manner would be hard to apply to a predictive model.

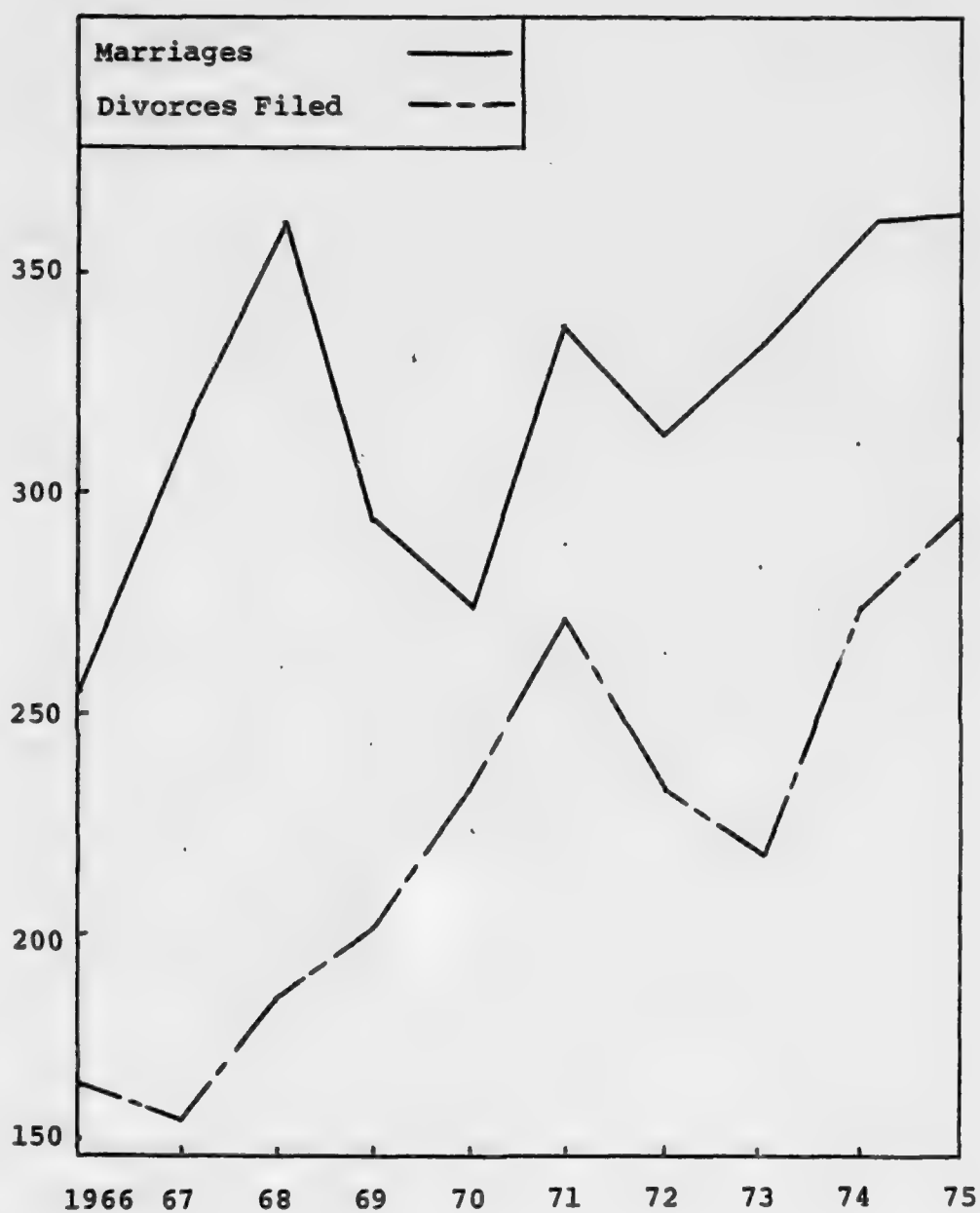


Figure 6

Marriages and Divorces--Clinton County

Source: Table 12, Appendix A.

The study of marriages and divorces leads the researcher to conclude that no persuasive evidence of a social impact to the community was found. Any affects felt by the community were short-lived and do not constitute a significant social impact.

Schools

The quality of education in a community is an important QOL factor in social assessments (18; 28). To measure potential indicators, the researcher utilized information received from the Superintendent of Schools for Clinton County (3).

School Enrollment

School enrollment plays a large part in determining the quality of education available to students. Decreased enrollments could result in a loss of federal revenues, an excess of facilities, a layoff of excess employees, as well as a loss of specialized programs which could not be supported by a smaller number of students.

The upper graph in Figure 7 depicts a school enrollment that declined but not until after 1972. The year after the base closed, the enrollment actually increased. In an interview, Mr. Carlton Binkley, Superintendent of Schools, stated that the decline in enrollments since 1972 was due primarily to smaller families (3).

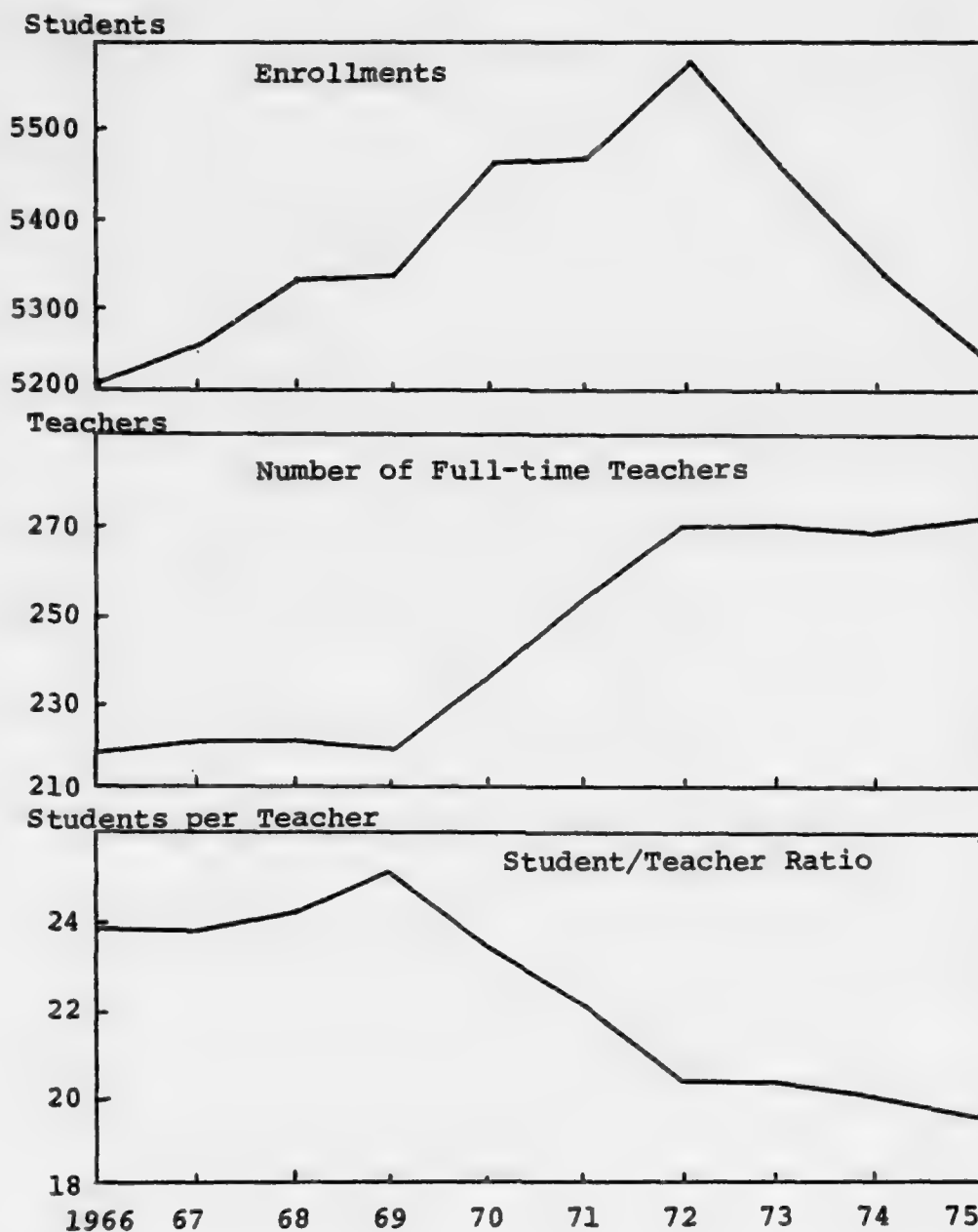


Figure 7

Student / Teacher Information--
Clinton County Public Schools

Source: Table 13, Appendix A.

At the same time that enrollments were increasing (1966 through 1972), more full-time teachers were hired. After 1972 the total number of teachers remained about the same even though school enrollment was declining. Since no information concerning the numbers of dependent children or families assigned to the base was available, it is impossible to infer any relationship between these figures and the base closure.

Student/Teacher Ratio

One way to measure the quality of education is to look at the student/teacher ratio. In Clinton County, the improving ratio of students to teachers indicated that an effort had been made to reduce the number of pupils per instructor. The years with the biggest improvement were 1969 through 1972, the time frame in which the base closed.

Since teachers were added the year after the base closed, and enrollments were also higher, the researcher concludes that the changes in the student/teacher ratio cannot be associated with the military.

Adult Education

For the social quality of life within a community to remain high, continuing adult education is extremely important (15; 18). The availability and participation in adult education programs would be a useful measure of potential QOL factors.

Clinton County offers a variety of courses including high school, technical school, college level courses, and specially run adult programs; however, information was not available for the ten years in question with which to make a meaningful analysis. Although the researcher still believes that this information would add much to a social assessment, it was not possible to draw a conclusion concerning the value of adult education programs as a social indicator.

Municipal Activity

A city government has certain functions it must carry out in order to insure the safety and well-being of its citizens. The operation of these functions would seem to be a ready source of information with which to measure the quality of life in the community. One could expect changes significantly affecting the community to be reflected in the municipal operations.

Parks and Recreation Department

In an attempt to assess the utilization of recreational facilities, the researcher reviewed annual reports and records of the Parks and Recreation Department (41). Although an effective program of public involvement in land use of parks and playgrounds has been an ongoing community concern, records do not indicate a change in acreage of existing facilities over the ten-year period in question

(41). Attendance figures were not available with which to measure the participation in recreational activities.

No attempt has been made to analyze the recreational usage of facilities because annual reports were not available. Although the recreational programs have expanded over the years, no objective means of measuring these changes or assessing relationships with the air base were discovered.

Zoning

The researcher attempted to obtain land use information concerning the various types and locations of property zoned for particular uses. The information desired included the number of acres zoned for residential, industrial and commercial use and for public use. No such information could be found in existing municipal records.

The researcher believes that the zoning of property might still be a good indication of land use impact upon a community, and any changes might be related to a base mission change; however, since no information was obtained, no real conclusion can be drawn about the potential usefulness of zoning as a social indicator.

Police Department

Throughout the literature on social assessments, law enforcement is considered a very important indicator of the social quality of life. The number and types of

crimes and the manpower and equipment used to combat them are proposed factors which may be measured to assess a community's quality of life (15; 18; 38).

In an attempt to obtain information, the researcher reviewed the annual reports of operation of the Wilmington Police Department and the County Sheriff's Office (39). At the county level, no attempt had been made to consolidate daily reports into a meaningful annual report until 1975. For this reason the researcher attempted to obtain information from the Wilmington Police Department. Annual reports were available for the ten-year period; however, after interviewing the Chief of Police, it became quite evident that these reports were very inaccurate (39). Prior to 1974 a very poor recording procedure had been used to keep track of various types of crimes. In some instances reports were never even filled out.

Because of the unavailability or inaccuracy of public records, the researcher has made no attempt to analyze occurrences of specific types of crimes. The researcher does believe, however, that such information at both the city and county levels would have been pertinent to the study of a possible social impact on the community.

Fire Department

Just as police protection plays a large role in determining the safety and well-being of the citizens, so does fire protection. Both life and property are at stake

and should be afforded the protection of the Fire Department (18; 30). A change in the level of protection would be an indication of a possible social impact on the community.

Annual reports and daily logs of the Wilmington Fire Department were studied for the years 1966 through 1975 (40). Table 14 in Appendix A gives a detailed breakdown of the types of emergency responses. The total number of responses for each year is plotted in Figure 8. One shortcoming of the data was that it did not provide information on the locations of the responses.

The Fire Department had been responding to a decreasing number of emergencies until 1973 at which time the number started to increase. The increase was due primarily to an expansion of the area of responsibility. Information about the base facilities states that only one family housing unit existed. The base fire department handled all emergencies occurring on the military property.

Since virtually all of the military members lived off base, and the number of emergency responses showed no significant change after the base closed, no inference can be drawn concerning a relationship between fire protection and closure of the base.

Public Utility Customers

The number of users of utilities can be a significant factor in the planning of services within a community.

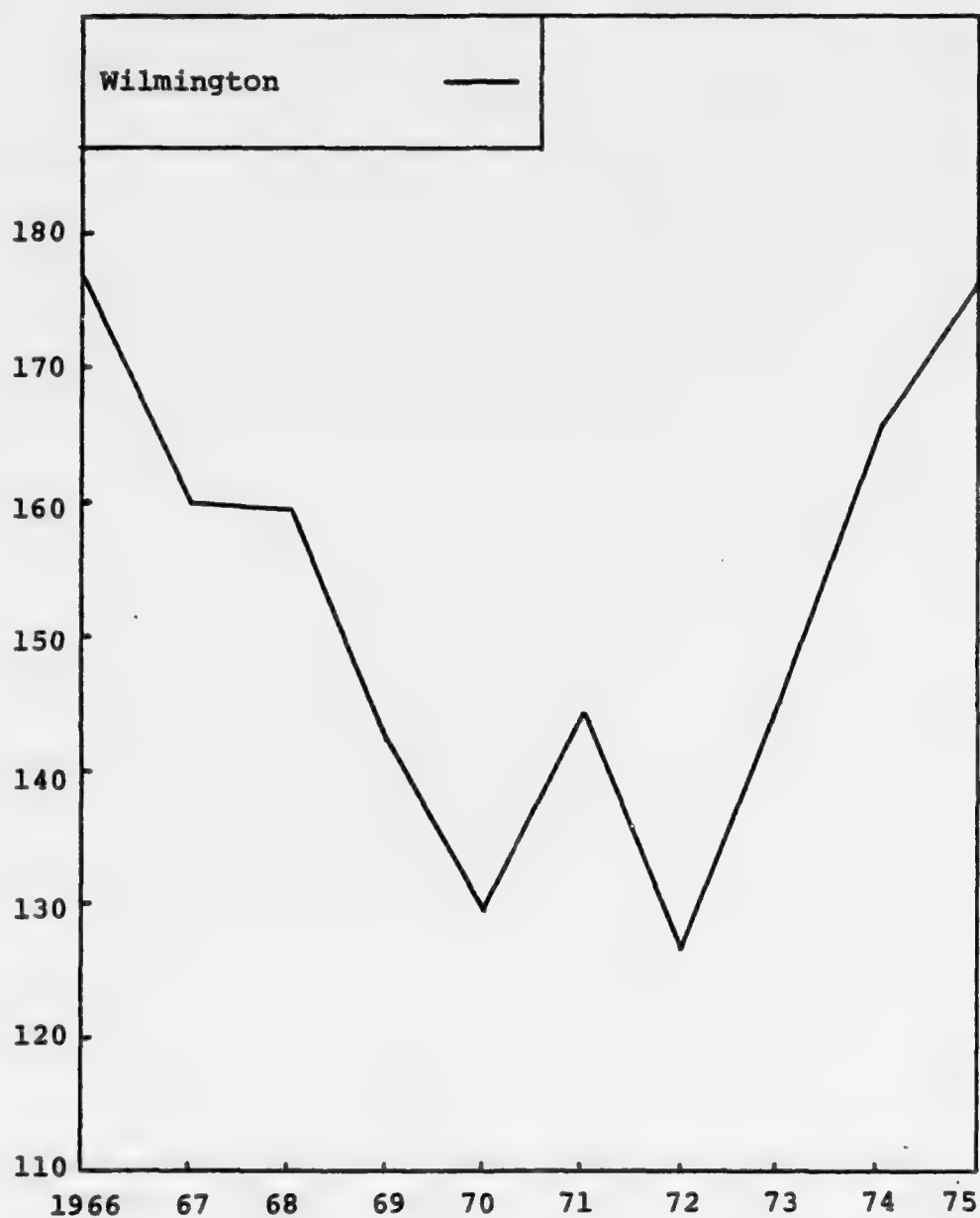


Figure 8
Fire Department Responses

Source: Table 14, Appendix A.

In addition to being a direct indication of the number of households, the number of electric customers and the number of telephones in use can be good indicators of the social quality of life in which the citizens live (18; 30).

Figure 9 depicts the number of water and electric customers and the total number of telephones in use in the county (22). All three graphs show a steady increase in usage over the ten-year period. If a significant social impact had occurred, one would expect that some change would be reflected in these utility services. Since no changes were noted after the base closed, no relationships can be inferred between a social impact and the base closure.

Health

Most of the literature on social impact assessment mentioned public health as a quantifiable factor (2; 18; 30). The selected measurement parameters were chosen because the information was recorded and available to the researcher.

Before analyzing individual factors, it should be pointed out that Clinton County Air Force Base had no medical facilities for use by its employees. The nature of the treatment determined whether the military used Clinton Memorial Hospital or Wright-Patterson Medical Center. No contractual arrangement was maintained with the county hospital.

Thousands

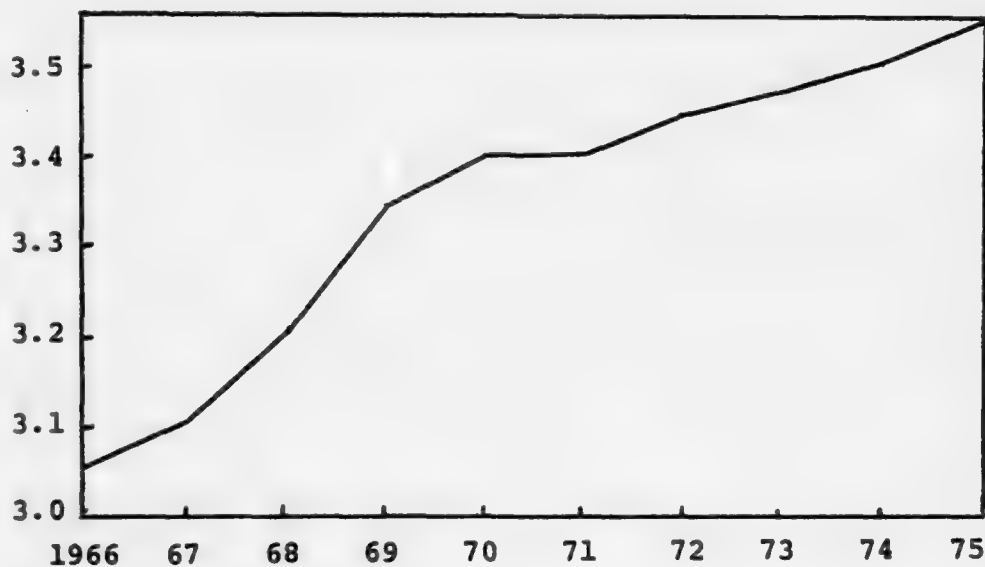
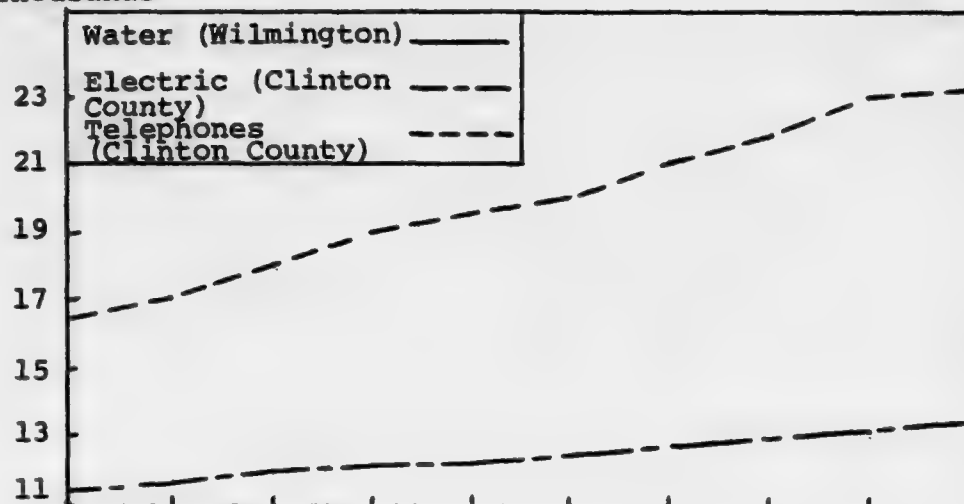


Figure 9

Public Utilities Customers

Source, Table 15, Appendix A.

Births and Deaths

The number of births and deaths within a community will influence housing, food, employment and education (18). For these reasons, the social impact that these population characteristics might cause should be studied to determine if, in fact, they did affect the social environment of Clinton County.

In order to compare the county and state information, the birth and death rates were plotted as percents of the total population. Figure 10 displays the information in graphical form, showing fairly consistent trends for both Clinton County and Ohio.

The birth rate for the county declined in 1972, the year after the base closed; however, the rate at the state level was decreasing also. Looking at the county birth trend for the entire ten-year period, one sees a constant decrease, with the exceptions of 1971 and 1972. The base closure could have been the primary factor causing these changes, or the changes could be just random fluctuations. The decrease in 1972 could have been expected since a portion of the community population departed. The researcher believes that since both the county and state birth rates were decreasing over the ten-year period, no significant social impact was caused by the base closure.

The death rates for both the state and county were fairly constant over the ten-year period. Small

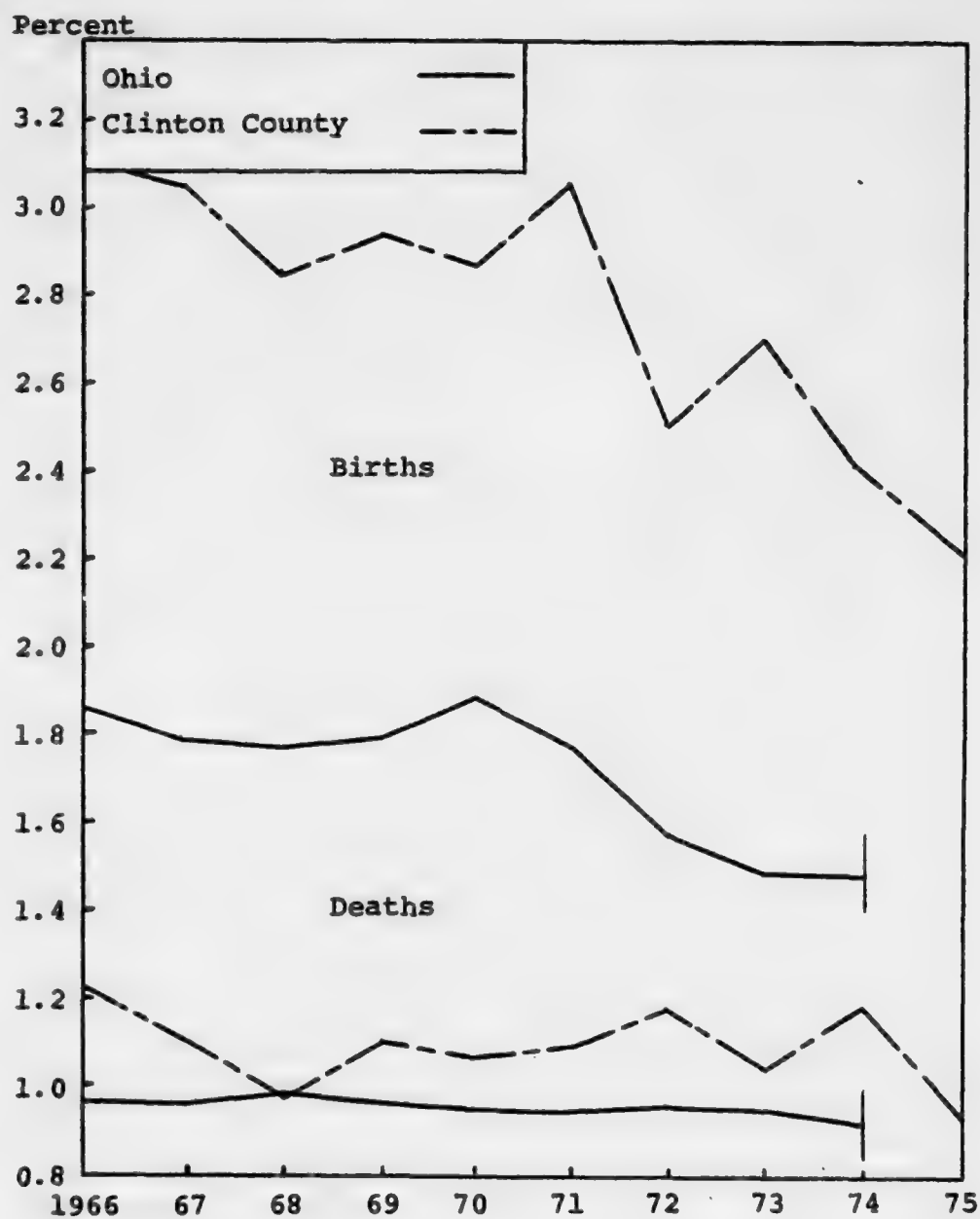


Figure 10
Births and Deaths
(Percent of Population)

Source: Table 16, Appendix A.

fluctuations in the county rate are understandable due to the smaller population, wherein a few deaths can really change the percentages. Overall, both trends are approximately the same with no change evidenced after the military departure; therefore, no impact is suggested from the death rates.

Illegitimate Births

The social and moral standards which exist within a community may help define the community's social quality of life. Illegitimate births may be consequences of these moral standards. The researcher suggests that the military presence in the community may have influenced the rate of illegitimate births. If the military had affected the number of illegitimate births, a social impact would have resulted when the military departed.

A plot of the illegitimate births of Clinton County and Ohio is shown in Figure 11. While the Ohio rate was fairly constant, Clinton County's rate fluctuated measureably but with a constantly increasing trend. This trend had started in 1969, before the base closed, and continued through 1975 although at a slower rate. A small drop was noted in 1972 and could have been caused by the departure of the military; however, the rising trend in 1973 indicates that any relationship to the base closure did not result in a long-term impact on the community.

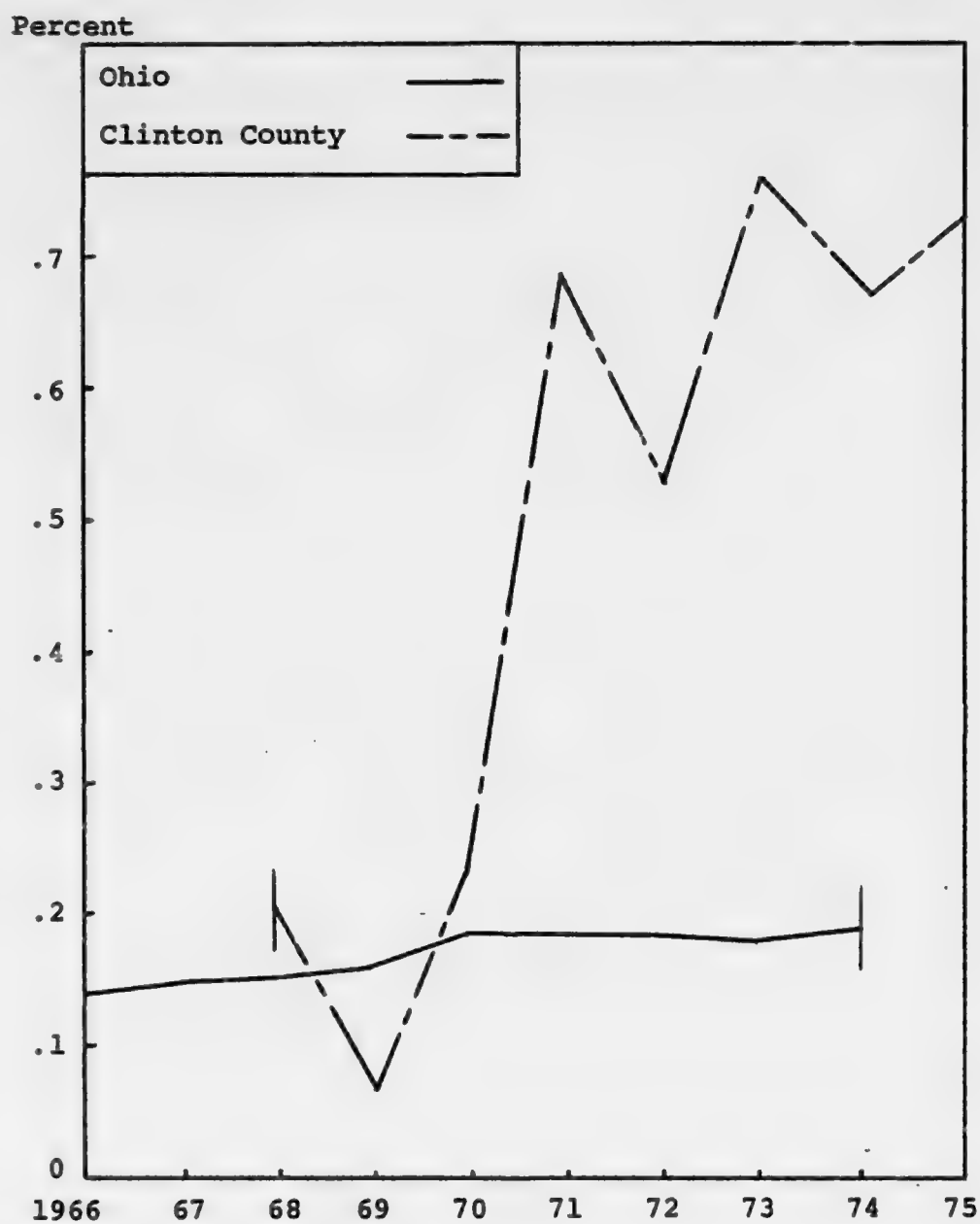


Figure 11

Illegitimate Births
(Percent of Population)

Source: Table 17, Appendix A.

Since the researcher was not permitted to review the actual birth certificates, any possible relationship between illegitimate births and the military could not be verified (8). This problem would appear to be a permanent one since all Health Department offices cannot release birth certificate information to the public; therefore, the usefulness of information on the number of county and state cases is questionable as a potential indicator.

Venereal Disease

A significant and sustained reduction in the number of venereal disease cases could be attributed to closure of the air base. Military personnel may have an association with this type of occurrence. The researcher obtained information about the county and state. Figure 12 shows the data as percents of population for the ten-year period.

The state's venereal disease rate increased steadily while the county's rate declined until 1969 at which time it started its upward trend. No reason was found for the drastic jump in 1973. During the time frame of the base closure, no change was noted from the upward trend. The presence of military members in the county was not a significant factor contributing to the rate of incidence of venereal disease.

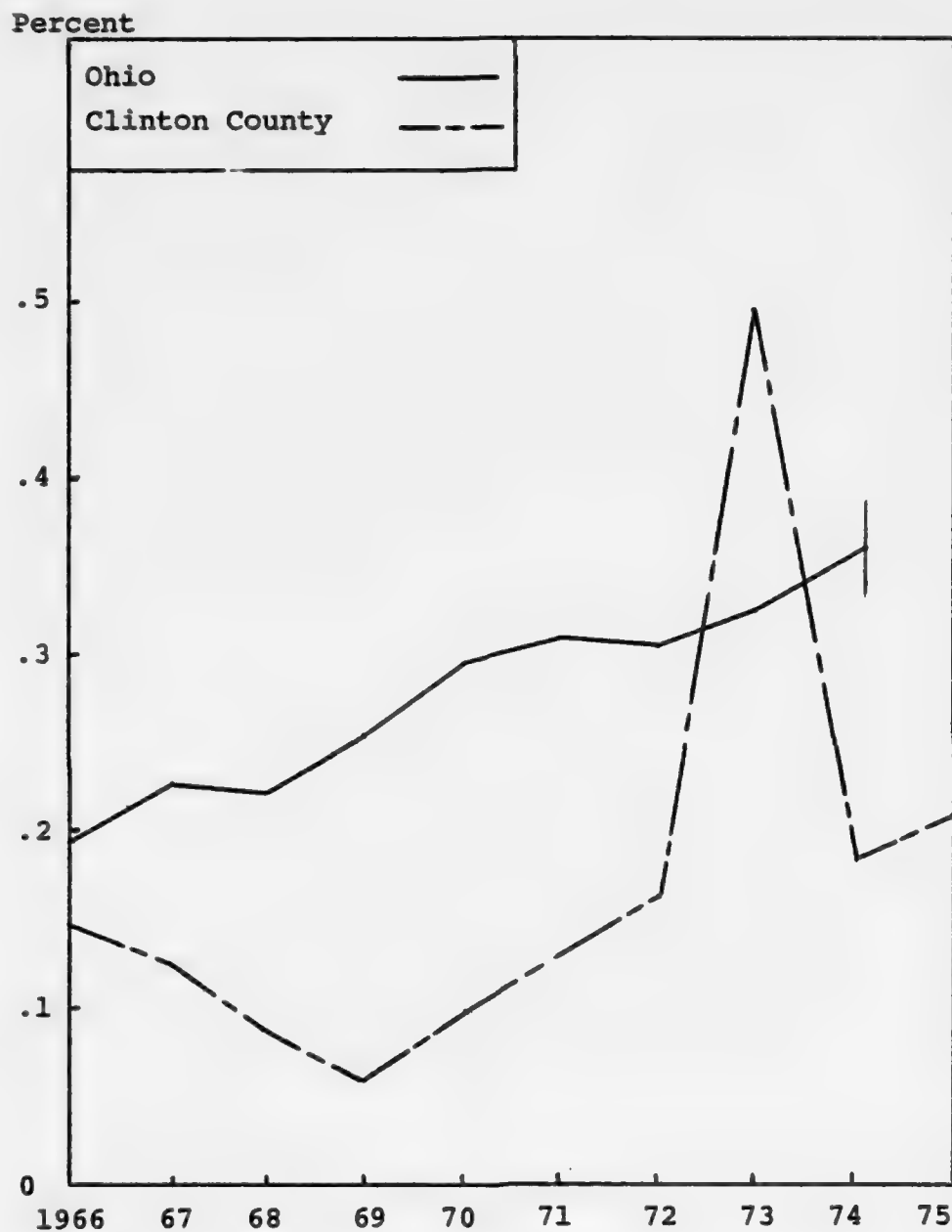


Figure 12

Newly Reported Cases of Venereal Disease
(Percent of Population)

Source: Table 18, Appendix A.

Mental Health and Drug Abuse

A community's social stability is definitely influenced by psychological stress and anti-social behavior (18; 19; 30). Crime, unemployment, and personal dissatisfaction can all result from the types of behavior listed above. Information was requested for the number of new cases of drug abuse and mental health treatment reported annually in Clinton County and Ohio from 1966 through 1975. No drug abuse information was available. The only mental health information which was available was at the county level from the Clinton County Health Department (8). The plot of this information is presented in Figure 13.

At first glance one notices a curious change: the number of mental health cases abruptly changed from an increasing trend to a decreasing one immediately after the base closed. It would be very tempting to conclude that the military personnel contributed more than their fair share to the mental health problem in the county. The researcher suggests that the psychological stress which many military people are under could well explain this phenomenon; however, individual cases could not be reviewed in order to verify this military connection. Other explanations may be made for the changing trend, such as better health care treatment, an improving economic situation, or possibly a synergistic effect of other factors that lessened the psychological stress on people.

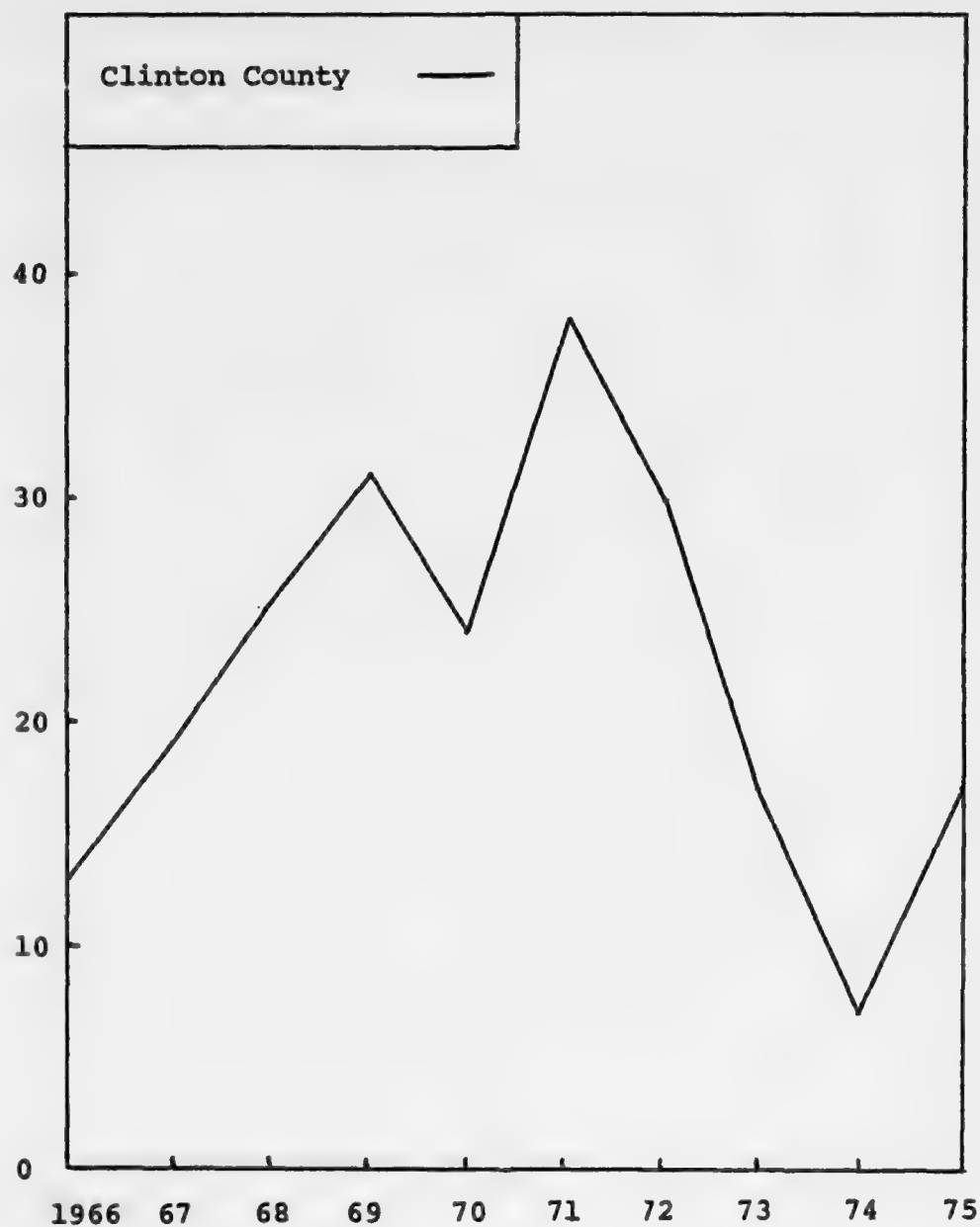


Figure 13
Mental Health Cases

Source: Table 19, Appendix A.

Since records could not be reviewed, the researcher found it very difficult to conclude that a relationship exists between military personnel and mental health; however, the information does appear to at least suggest such a connection. Further research into this area seems quite appropriate.

If, indeed, a relationship exists, the best that could be said is that the local community would not suffer when the military departs.

The researcher believes that the area of drug abuse could be a useful indicator of the social quality of life in a community. Although support for this idea is not available in this study, future efforts would appear to be warranted, especially when one considers the possible connection between the military and mental health problems.

Hospital Admissions and Emergency Room Treatment

Physical health and well-being are potential sources of information used to quantify social indicators. The social quality of life in a community should include the ability to provide health care for its citizens (18; 30).

After reviewing possible measures of physical health and the ability to quantify each, the researcher chose hospital admissions and emergency room treatments

as potential indicators (12). Figure 14 displays the information about these factors from 1967 through 1975.

The number of hospital admissions showed a trend toward stability--a leveling off of the annual total number of admissions. At the same time, the number of emergency room treatments was constantly climbing, indicating that possibly more people were being treated on an outpatient basis. Since no changes were noted after the base closed, and the total number of treatments increased, it is impossible to imply that the military affected local health care treatment.

Electoral Participation

One way to determine how well the adults in a community discharge their political responsibilities is to measure their participation in elections. Figure 15 shows the percentage of eligible voters who actually cast ballots in the general elections.

The two years with the highest participation, 1968 and 1972, were Presidential election years, periods which normally would be expected to have high voter participation. The rest of the ten-year period shows high variances, indicating no consistent trend toward voting. The issues or the candidates running for office might have influenced the electoral participation, but the figures do not imply an impact that could be attributed to the military departure. The base closure appears not to have changed the social

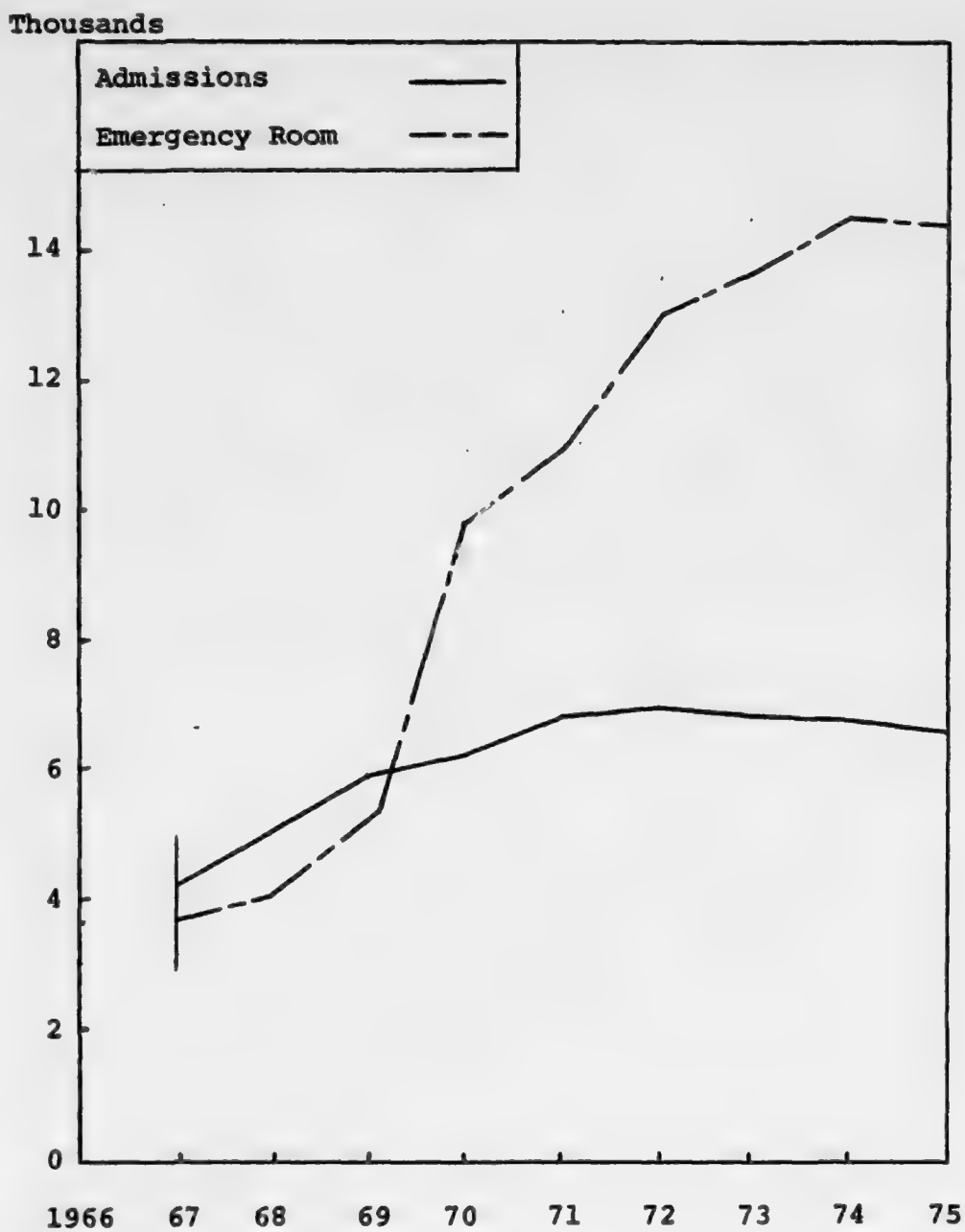


Figure 14

Hospital Admissions and Emergency Room Treatments

Source: Table 20, Appendix A.

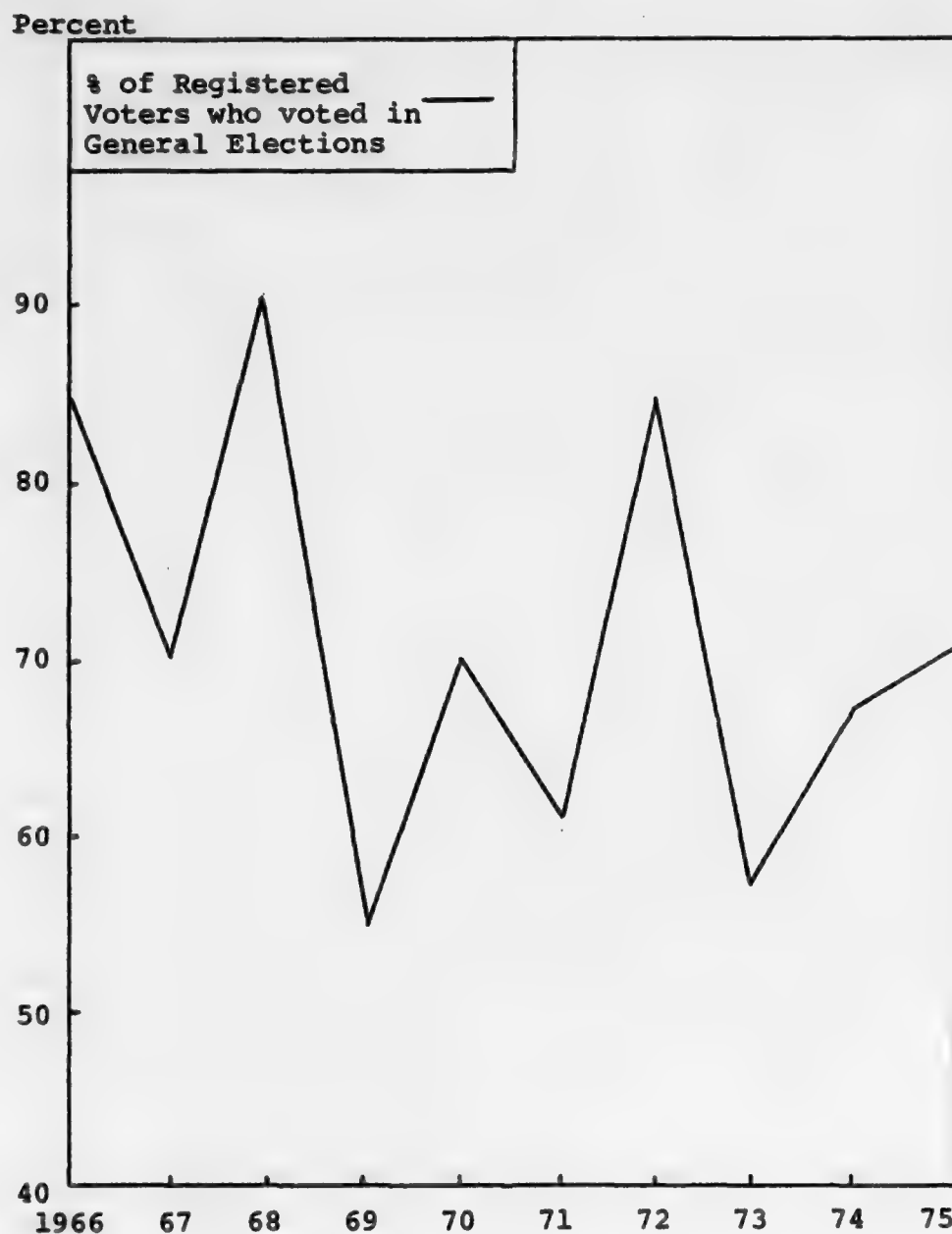


Figure 15

Electoral Participation--Clinton County

Source: Table 21, Appendix A.

environment in the community, at least not in the area of political participation.

Summary

The QOL factors which the researcher thought might be good social indicators were discussed in this chapter. The selection of each factor was supported either by citation in the social assessment literature or by the researcher's formulation of a logical extension of other environment works. The factors with quantitative information were analyzed in an attempt to establish relationships between measured changes and the closure of Clinton County Air Force Base. Those factors for which no information was available were discussed in relation to their potential use by future research teams. The conclusions of this entire analysis are included in the following chapter.

Many areas which could have had social implications (e.g., municipal revenues, transportation, facility usages, housing) were covered by research teams working on the economic and physical impact of the same base closure. Hopefully, the combined efforts of all three research teams have covered the most promising QOL factors with which to assess possible social impacts.

CHAPTER V

CONCLUSIONS

The objective of this research was to gather data which could be used by future research teams to develop a model for predicting the social impact of military base mission changes.

In order to meet this objective, the researcher presented three research questions. The answers to these questions should ultimately suggest which social indicators, if any, should be considered in building the predictive model.

Conclusions

In trying to answer Research Question 1, the researcher reviewed all potential indicators mentioned in the available literature. Objective indicators were decided upon for the reasons stated earlier (page 7). Because the literature yielded no specific criteria for what quantity of a certain QOL factor constitutes a significant social impact, the researcher could not assign quantitative measures of significance to the QOL factors as indicators of a social impact. The researcher believes that most of the factors presented in Chapter IV would be relevant to determine the social quality of life in a community;

however, the lack of quantitative criteria and significance makes this belief objectively unsupportable with the present state-of-the-art of environmental assessments.

The availability of historical data with which to conduct a social impact assessment was no real problem. Most of the desired information was available as part of public records. In a couple of instances (i.e., mental health cases and venereal disease cases) access to the information was limited to total figures; therefore, it was difficult to associate military personnel with the factor being studied. Also, some information was not available because of peculiar situations within the community (e.g., police records). The majority of public records, however, were readily accessible and should continue to be so for future research teams.

The data collection utilizing military records was the most fruitless part of the research effort. The only information obtained concerning the air base was its history and its total unit manning. Had more comprehensive records been available, relationships between the base and the local community could have been established with more relevancy.

In final answer to Research Question 2, the researcher concludes that data sources are available with which to quantify selected social indicators.

After analyzing and evaluating all of the QOL factors which were studied, the researcher cannot conclude the fact that a change in any of the factors could have been directly attributed to the base closure. Only one factor, the number of mental health cases handled in Clinton County, showed any long-term change, and, as mentioned in the analysis, no military relationship could be substantiated. Short-term variances were noted in a few of the factors; however, their long-term effect did not constitute an impact on the community. To answer Research Question 3, then, no social indicators were found which could be associated with the closure of Clinton County Air Force Base.

Very little, if any, change occurred in the social environment of the local community. Recorded data substantiated this belief. If, in fact, an impact had occurred, the information to support such a claim must be created from existing data which was not found by the researcher.

Since no social indicators were found to have an association with the base closure, further study of Clinton County and Wilmington, Ohio, seems unwarranted. The researcher concludes that changes occurring in the community were either directly or indirectly related to the population reduction and not to the fact that a military installation closed. Because the military population

constituted less than six percent of Wilmington's population and less than two percent of Clinton County's population, none of the changes observed in the QOL factors studied were large enough to be practically significant or to constitute a social impact. Finally, the researcher believes that the community was able to absorb and rebound from whatever effects the base closure did cause in a short time span. This community action helped insure that no significant impact was felt by the citizens.

Recommendations

The first recommendation made by this researcher is that more study be done on the social indicators found in a community. Although this report lacks quantitative support, the methodology as defined in Chapter I appears to be sound. Further studies would seem appropriate in cases where the base population constituted a larger percentage of the community population.

A second recommendation is that ways of creating or combining data be explored in order to get a better perspective on certain QOL indicators. Information taken directly from public records is fine; however, by working with the data, a more meaningful analysis scheme might be developed.

An on-going collection of historical data from many base closures would provide a bank of knowledge from which significance measurements might be derived. One problems

with current environmental assessments is the definition of a "significant change." Obviously, if people have to change their way of life in order to adjust to a new situation, an impact has resulted. The real problem comes when no community change is outwardly detectable or when no standard of significance has been developed with which to measure the changes. These cases comprise the majority of most impact assessments, and, until the Department of Defense collects and analyzes a sufficient amount of data in order to develop significance levels, no conclusive evidence will be available for use in the courts.

Military records should be arranged and recorded in a manner that will facilitate the completion of environmental studies and the normal day-to-day military uses. In addition to total figures, information should include the population distribution by age and sex, marital status, composition of families, and a grade breakdown. This additional information will enhance environmental work and make future studies more meaningful.

The researcher further recommends that future researchers request their information by letter and follow up if data is not forthcoming or if additional data is required. Municipal, county, and state offices should be contacted to insure that an adequate amount of information is available with which to make the social assessments. Also, interviews with appropriate officials would seem

warranted if a change is detected near the time of a base mission change.

Because most of the methodology and other ground work has been laid for future research teams, this researcher's final recommendation is that all three areas of impact analyses (social, economic, and physical) be combined. Many of the environmental factors overlap or directly influence one another. In addition, one team doing the entire analysis would provide a more balanced perspective of the actual environmental impact on the community. For these reasons it seems quite appropriate to combine the individual efforts into one consolidated study.

It is hoped that the results of this research effort have contributed to the Air Force and the Department of Defense's ability to protect the environmental concerns of the nation.

APPENDIXES

APPENDIX A

TABLES

TABLE 3
POPULATION INFORMATION, 1960 and 1970

Year	Wilmington	Clinton County	State of Ohio
1960	8,915	24,432	9,706,379
1970	10,051	31,464	10,652,017

Source: World Almanac and Book of Facts (44).

TABLE 4
ANNUAL POPULATION FIGURES

Year	Wilmington	Clinton County	State of Ohio
1966	9,597	28,651	10,273,762
1967	9,710	29,354	10,368,326
1968	9,824	30,058	10,462,889
1969	9,937	30,761	10,557,453
1970	10,051	31,464	10,652,017
1971	10,063	31,673	10,722,773
1972	10,075	31,882	10,793,529
1973	10,087	32,091	10,864,284
1974	10,100	32,300	10,935,042
1975	10,112	32,509	11,005,800

Source: Derived from 1960 and 1970 census information (44).

TABLE 5
UNIT MANNING OF CLINTON COUNTY AIR FORCE BASE

Year	Assigned Military	Civilian Civil Service	Total Personnel
1960	554	348	902
1961	527	393	920
1962	68	422	490
1963	70	417	487
1964	120	415	535
1965	188	410	598
1966	177	397	574
1967	197	397	594
1968	233	463	696
1969	57	521	578
1970	66	613	679
1971	60	538	598

Source: HUD Report (13).

TABLE 6
LABOR FORCE AND UNEMPLOYMENT

Year	Labor Force	Clinton County Unemployment	%	Labor Force	State of Ohio Unemployment	%
1966	11,475	275	2.4	4,139,900	122,300	3.0
1967	11,725	275	2.3	4,236,800	134,700	3.2
1968	12,025	275	2.3	4,348,600	125,700	2.9
1969	12,325	300	2.5	4,473,900	123,400	2.8
1970	13,097	610	4.7	4,378,000	235,000	5.4
1971	13,160	714	5.4	4,429,000	287,000	6.5
1972	13,273	642	4.8	4,523,000	250,000	5.5
1973	14,069	582	4.1	4,614,000	198,000	4.3
1974	14,275	650	4.6	4,704,000	225,000	4.8
1975	14,724	1215	8.3	4,726,000	430,000	9.1

Source: Ohio Bureau of Employment Services (24).

TABLE 7
WELFARE ENROLLMENT--CLINTON COUNTY

Year	Aid to Dependent Children	General Relief	Medicaid*	Total
1966	141	32	647	820
1967	144	45	583	772
1968	156	26	543	725
1969	160	19	515	694
1970	181	45	481	707
1971	248	28	461	737
1972	323	34	470	827
1973	318	28	495	841
1974	314	42	503	859
1975	388	43	635	1066

Source: Clinton County Welfare Department (11).

*From 1966-1973, this was divided into three programs--Aid for the Aged, Aid for the Deaf, and Aid for the Blind.

TABLE 8
JUDICIAL BUSINESS OF THE
COMMON PLEAS COURT OF CLINTON COUNTY

Year	Total Cases Filed During Each Year		
	Criminal	Domestic Relations	Other Civil
1966	48	183	104
1967	50	169	117
1968	50	208	90
1969	56	222	96
1970	68	246	86
1971	61	304	54
1972	68	258	114
1973	69	231	119
1974	84	294	103
1975	88	328	126

Source: Clinton County Common Pleas Court (7).

TABLE 9
JUDICIAL BUSINESS OF THE
COUNTY COMMON PLEAS COURTS OF THE STATE OF OHIO

Year	Total Cases Files in the State Each Year		
	Criminal	Domestic Relations	Other Civil
1966	14,318	51,507	44,225
1967	16,111	52,881	44,018
1968	16,775	58,190	42,783
1969	19,102	63,183	41,986
1970	22,743	65,788	49,912
1971	24,475	66,846	53,500
1972	24,155	70,857	52,264
1973	25,121	77,140	53,759
1974	28,782	80,068	58,943
1975	----- Not Available -----		

Source: Ohio Supreme Court (39).

TABLE 10
CLINTON COUNTY JUVENILE COURT CASES

Year	Delinquency	Unruly	Dependency and Neglect	Traffic	Special Services	Adult	Total Cases
1966	76	*	24	116	10	20	246
1967	129	*	15	213	7	70	426
1968	161	*	6	227	8	75	477
1969	166	*	16	195	5	81	463
1970	56	78	22	203	12	96	467
1971	127	100	40	205	16	96	584
1972	123	92	83	204	10	103	615
1973	135	106	51	233	14	62	602
1974	169	133	86	250	13	112	763
1975	186	97	50	356	7	56	752

Source: Clinton County Juvenile Court (6).

*Unruly was included in delinquency in these years.

TABLE 11
STATE OF OHIO JUVENILE COURT CASES

Year	Delinquency	Unruly	Dependency and Neglect	Traffic	Special Services	Adult	Total Cases
1966	41,570	*	5,585	47,294	1,978	6,846	103,273
1967	47,239	*	5,743	53,238	1,619	7,419	115,258
1968	51,812	*	5,728	61,798	1,857	8,506	129,701
1969	55,013	*	5,755	71,031	2,315	11,034	145,148
1970	44,886	16,678	6,010	67,254	2,160	10,411	147,399
1971	43,397	18,337	6,406	69,686	2,269	8,461	148,556
1972	42,952	19,126	7,221	68,476	2,652	9,062	149,489
1973	44,301	20,784	7,467	79,005	3,031	9,315	163,903
1974	-----	-----	-----	Not Available	-----	-----	-----
1975	-----	-----	-----	Not Available	-----	-----	-----

Source: Ohio Supreme Court (29).

*Unruly was included in Delinquency in these years.

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TABLE 12
MARRIAGES AND DIVORCES--CLINTON COUNTY

Year	Marriages ^a	Divorces Filed ^b
1966	254	167
1967	321	157
1968	362	184
1969	293	201
1970	274	232
1971	340	272
1972	314	233
1973	335	219
1974	362	274
1975	364	294

Sources: ^aClinton County Probate Court (9).

^bClinton County Common Pleas Court (7).

TABLE 13

STUDENT/TEACHER INFORMATION--CLINTON COUNTY PUBLIC SCHOOLS

Year	Number of Students Enrolled	Number of Full-time Teachers	Student/ Teacher Ratio
1966	5209	218	23.9
1967	5256	221	23.8
1968	5361	221	24.2
1969	5356	218	25.1
1970	5465	234	23.4
1971	5472	252	22.1
1972	5581	269	20.3
1973	5463	270	20.2
1974	5364	268	20.0
1975	5246	271	19.4

Source: Clinton County Superintendent of
Schools (3).

TABLE 14
FIRE DEPARTMENT RESPONSES--WILMINGTON

Year	Building Fires	Other Type Fires (Grass, Cars)	Standby, Smoke Scares False Alarms	Total
1966	53	50	74	177
1967	52	47	61	160
1968	62	55	42	159
1969	51	45	36	132
1970	42	35	42	119
1971	55	39	40	134
1972	50	39	28	117
1973	59	42	42	143
1974	39	56	71	166
1975	56	51	69	176

Source: Wilmington Fire Department (40).

TABLE 15
PUBLIC UTILITIES CUSTOMERS

Year	Electric (Clinton County) ^a	Water (Wilmington) ^b	Number of Telephones In Use (Clinton County) ^c
1966	11,478	3,057	16,439
1967	11,692	3,106	17,009
1968	11,915	3,214	18,019
1969	12,118	3,343	19,005
1970	12,195	3,398	19,641
1971	12,447	3,400	20,189
1972	12,675	3,446	20,977
1973	12,993	3,470	21,844
1974	13,177	3,504	23,081
1975	13,233	3,558	23,198

Sources: ^aDayton Power and Light Company, Wilmington Office, (25).

^bWilmington Water Department (43).

^cGeneral Telephone Electronics, Wilmington Office (22).

TABLE 16
BIRTHS AND DEATHS

Year	Clinton County ^a				State of Ohio ^b			
	Births		Deaths		Births		Deaths	
	Number	%	Number	%	Number	%	Number	%
1966	902	3.15	349	1.22	190,444	1.85	98,921	.96
1967	902	3.07	322	1.10	185,204	1.79	98,041	.95
1968	857	2.85	293	.97	185,580	1.77	102,928	.98
1969	902	2.93	337	1.10	189,099	1.79	101,011	.96
1970	901	2.86	333	1.06	199,781	1.88	100,264	.94
1971	965	3.05	342	1.08	189,919	1.77	99,610	.93
1972	799	2.51	374	1.17	169,151	1.57	101,826	.94
1973	864	2.69	330	1.03	160,436	1.48	101,346	.93
1974	779	2.41	378	1.17	160,199	1.47	99,101	.91
1975	719	2.21	299	.92	-----	Not Available	-----	-----

Sources: ^aClinton County Health Department (8).

^bOhio Department of Health (27).

TABLE 17
 ILLEGITIMATE BIRTHS
 (PERCENT OF POPULATION)

Year	Clinton County ^a		State of Ohio ^b	
	Number	%	Number	%
1966	-- Not Available --		13,924	.136
1967	-- Not Available --		15,001	.145
1968	20	.204	15,999	.153
1969	7	.070	17,259	.163
1970	23	.229	19,784	.186
1971	69	.686	19,719	.184
1972	53	.526	19,786	.183
1973	77	.763	19,488	.179
1974	68	.673	20,160	.184
1975	73	.722	--- Not Available ---	

Sources: ^aClinton County Health Department (8).

^bOhio Department of Health (27).

TABLE 18
NEWLY REPORTED CASES OF VENEREAL DISEASE
(PERCENT OF POPULATION)

Year	Clinton County ^a		State of Ohio ^b	
	Number	%	Number	%
1966	14	.146	20,155	.196
1967	12	.124	23,437	.226
1968	9	.092	23,328	.223
1969	6	.060	26,732	.253
1970	10	.099	31,595	.297
1971	13	.129	33,519	.313
1972	17	.169	33,098	.307
1973	50	.496	35,236	.324
1974	19	.188	39,866	.365
1975	21	.208	--- Not Available ---	

Sources: ^aClinton County Health Department (8).

^bOhio Department of Health (27).

TABLE 19
MENTAL HEALTH CASES--CLINTON COUNTY

Year	Number of Persons Receiving Mental Health Treatment
1966	13
1967	19
1968	25
1969	31
1970	24
1971	38
1972	30
1973	17
1974	7
1975	17

Source: Clinton County Health Department: (8).

TABLE 20
HOSPITAL ADMISSIONS AND EMERGENCY ROOM
TREATMENTS--WILMINGTON

Year	Hospital Admissions	Emergency Room Treatment
1966	----- Not Available -----	
1967	4,218	3,717
1968	5,012	4,038
1969	5,975	5,628
1970	6,353	9,824
1971	6,786	10,857
1972	6,961	13,069
1973	6,891	13,600
1974	6,822	14,381
1975	6,626	14,340

Source: Clinton Memorial Hospital (12).

TABLE 21
ELECTORAL PARTICIPATION--CLINTON COUNTY

Year	Number of Registered Voters	Number that Voted in General Elections	%
1966	9,987	8,427	84.4
1967	10,018	7,030	70.2
1968*	12,338	11,180	90.6
1969	12,600	6,939	55.1
1970	12,743	8,862	69.5
1971	12,954	7,927	61.2
1972*	13,400	11,336	84.6
1973	13,228	7,562	57.2
1974	13,678	9,144	66.9
1975	12,674	8,899	70.2

Source: Clinton County Board of Elections (5).

*Years of Presidential Elections.

APPENDIX B
HISTORY OF CLINTON COUNTY AIR FORCE BASE

APPENDIX B

HISTORY OF CLINTON COUNTY AIR FORCE BASE

The history of CCAFB really goes back to 1929 when a barnstormer named 'Stormy' Roderick was hired to instruct local aeroplane enthusiasts in 1929. His landing strip, an old corn field, ultimately became a part of the base. His Sunday afternoon shows attracted large crowds to the borrowed field. By the time of its 30 September 1971 closure, that field had grown to 1,376 acres, including a runway 9,000 feet long with a 1,000 foot overrun at each end.

A small hangar was built in 1930. In 1933 the Civil Works Administration improved the landing strip and later that same year American Airlines requested the landing strip for an emergency landing field. The first private funds invested were by American for their Columbus-Cincinnati line. The Civil Aeronautics Authority took over Wilmington Airport in 1940 as an emergency landing field.

The Army Air Corps assumed control of the field in 1942 and laid the first coat of concrete paving the runway. The Air Materiel Command used Clinton County development until the end of WWII. Still under control of AMC the base was used by All Weather Flying Division until 1949 when it was mothballed.

Continental Air Command reopened the base during the Korean Conflict.

In 1951 the 2252d Air Reserve Training Unit Wing and 910th Reserve Training Wing (Lt Col Donald J. Campbell, Commander) were assigned to Clinton County AFB from the Greater Cincinnati Airport, Erlanger, Kentucky.

The 2252d and 910th were dissolved in 1952 and became the 2252d Air Reserve Flying Center. In June 1952, the 302d Troop Carrier Wing was brought from McChord AFB, Washington, to become the Reserve Wing at the base.

During July 1958, the 2494th Air Reserve Training Wing was created by 14th Air Force and assigned to this installation to supervise training and manning of assigned Air Reserve Centers, assigned and attached units, and to discharge other assigned duties.

The Air Reserve Technician Program went into effect 1 October 1953. ART people are Civil Service employees who are also active Air Force reservists, many times performing the same job in both capacities. The ART program insures a permanent cadre of skilled personnel available to the government.

On 1 January 1960 jurisdiction of Clinton County AFB was transferred from Continental Air Command to the Strategic Air Command. The 302d remained a tenant unit on the base. Construction of Hangar 5, the largest hangar on the base, was completed by SAC on 31 December 1959, with 68,000 square feet of floor space.

On 1 July 1961 the base was transferred back to the Continental Air Command. The 302d became the 'owner' of the base administering the base for the tenant units. The 302d was one of the first AF Reserve troop carrier wings to assume administration of its own base, commanded by Brig. General Donald J. Campbell.

In addition to the 302d Troop Carrier Wing there were other tenant units on the base. Included in these were the 160th Air Refueling Squadron of the Ohio Air National Guard; a detachment of the 37th Fighter Interceptor Squadron (Air Defense Command); the 3rd Weather Squadron (Military Airlift Command); the 2046-3 Communications Detachment (Air Force Systems Command); the U.S. Army 71st Ordnance Detachment and Helicopter Section and a Naval Reserve Training Detachment.

The host unit at CCAFB for most of its years since 1952 was the 302d which changed designations along with the growth of the Reserve program, from Troop Carrier Wing to Special Operations Wing, and finally Tactical Airlift Wing in August of 1971 [37].

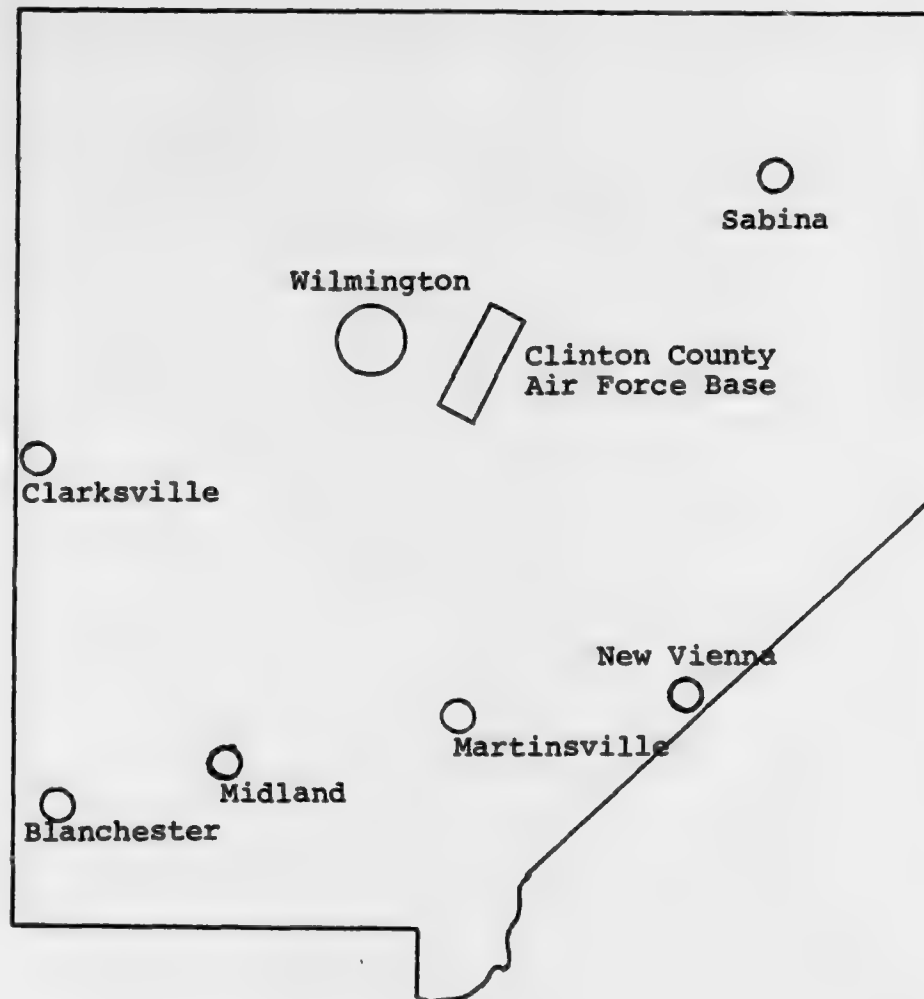


Figure 16
Clinton County, Ohio

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SELECTED BIBLIOGRAPHY

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